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ABSTRACT

This guide is intended to help vocational educators to create general energy awareness among their students and assist in preparing their students to become skilled workers in energy-related occupations. The guide contains hundreds of resources, such as names of personal contacts and programs at state and federal levels, sources for funding, organizations with energy-related activities, and a variety of materials, including lists of periodicals and newsletters; curriculum materials, films, and bibliographies and directories. A glossary is included to help keep the teacher up-to-date on the latest terms in energy technology. An introduction to each section explains the type of information to be found in the section and the abbreviation used. (KC)

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ENERGY AWARENESS GUIDE

A Resource Book for Vocational Educators

Researched and compiled by Lorene Ulrich and Susan Nelson

Edited by Ruth A. Sievers

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

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INTRODUCTION

If we thought about energy 10 years ago, we were probably wondering whether we had the energy to go bowling after work, or the energy to sit on yet another committee or the energy to quiet the classroom.

Today energy has a very different meaning for us, for the students we teach and for the nation as a whole. Since the oil embargo of 1973, the price of a barrel of oil has increased more than 10 times. This has had a dramatic influence upon our economy, affecting the cost of filling the family car, paying the home heating bill, as well as paying the bills for schools and businesses. It has forced Americans to rethink and reshape the ways in which we work and play.

The challenge to vocational education is twofold. First, we need to help create general energy awareness among the students we teach, so that they will become energy-conscious consumers and citizens, knowledgeable and capable of making decisions based upon a clear understanding of the importance of energy in their lives and for the good of the nation. Approximately 34 percent of the energy consumed in this country is used in the home and for personal transportation. An informed citizenry can make a big difference in the nation's ability to conserve energy.

Second, vocational education needs to begin now to prepare workers skilled in areas of energy efficiency. The future is going to see new applications for large numbers of workers skilled in traditional areas: carpenters, pipefitters, sheet metal workers, heavy equipment operators, maintenance mechanics and chemical technicians. These people will need to be familiar with the new applications of their trades to such emerging energy technologies as solar, wind, nuclear, biomass and synthetic fuel.

In addition, there will be jobs for skilled workers to drill and explore for gas and oil, to build and maintain pipelines, to mine and transport coal, to install, operate and maintain diesel-powered engines and new burners and boilers for industry. Skilled workers will be called upon to insulate buildings and to design and operate energy management systems in homes, factories and commercial establishments.

The AVA *Energy Awareness Guide* is a beginning step in helping vocational educators reach these two goals. In it, the vocational educator will find hundreds of resources—personal contacts and programs at state and federal levels, sources for funding, organizations with energy-related activities and a variety of materials, including lists of periodicals and newsletters; curriculum materials; films; and bibliographies and directories. A glossary is included to help keep the teacher up-to-date on the latest terms in energy technology.

This guide grew out of the American Vocational Association's (AVA) energy project, funded by the U.S. Department of Energy (DOE) from September 1979 through November 1980. The support of DOE allowed AVA to conduct, in cooperation with the states, 12 state energy education workshops and one national conference. What AVA found was that, while many vocational educators were concerned about energy awareness and wanted to incorporate energy-related material into their curricula, they were not always sure where to go for help. This book was created in response to that need.

This book is neither an exhaustive nor definitive piece, but we at AVA do believe it will prove invaluable to the interested educator. Energy is an area that vocational educators cannot afford to ignore. The quality of life for today's students and future generations may well depend on our ability to train workers to use the new energy technology and to create a new ethic for energy conservation.

STATE-BY-STATE GUIDE

If you want to know what's going on in energy-related education in your area, start by getting in touch with a local school administrator. In most cases, final authority for curriculum development rests with the local school board.

Many states have established energy education policies (those that are marked with an *) and are developing or adapting energy-related curricula and resource materials for use by local schools. The first three columns of this guide list individuals who can help with specific inquiries.

The *State Education Agency* (SEA) contact (column one) is usually the primary source of information on state-specific energy-related curricula and materials and on teacher training.

The *State Energy Office* (SEO) or *Energy Extension Service* (EES) contact (column two) can answer more detailed energy questions. Many states have toll-free "hotlines" that can provide general energy information. This column also contains a contact for information on *solar education* activities in each state.

The third column lists *Vocational Education Contacts,* individuals who are specifically concerned with the development of energy-related materials and courses for vocational education. The extent of their involvement varies from state to state. Some states are very active in occupational specific energy-related education, while others are just beginning to integrate energy into their curricula.

The fourth column gives brief summaries of each state's energy-related education resources and activities, including publications, curricula and special services such as reference and film libraries, speakers' bureaus and teacher training.

The information listed in columns one, two and four was obtained from the U.S. Department of Energy. Column three information was compiled by the American Vocational Association.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Alabama	Donna Bentley Energy Educ. Spec. Dept. of Education 111 Coliseum Blvd. Montgomery, AL 36193 205-832-5850	Edwin Hudspeth Staff Director Alabama Energy Management Board 3734 Atlanta Highway Montgomery, AL 36130 205-832-5010 Solar ed: Evelyn Jackson 205-832-5010	James Kendrick Curriculum Coordinator Division of Vocational Education Services State Dept. of Education State Office Bldg. Rm. 802 Montgomery, AL 36130 205-832-3473	SEA has interdisciplinary energy curriculum (soc. studies, science, and math units; teacher guide for language arts); is developing early ed. materials; has introductory filmstrip on the energy situation. SEO provides energy publications free; runs slide-show workshops.
Alaska	Raymond Coxe Education Specialist Dept. of Education Pouch F Juneau, AK 99811 907-465-2841	John Hale, Coordinator Energy Extension Serv. Alaska Div. of Energy MacKay Bldg., Rm. 110 338 Denali St. Anchorage, AK 99501 907-276-0512 Solar ed: Bob Shippley 907-276-0508	Verdell Jackson Program Manager Career and Voc. Education State Dept. of Education Pouch F, State Ofc. Bldg. Juneau, AK 99811 907-465-2980	EES lends curriculum guides; provides brochures, fact sheets, and **Energy is Everywhere** booklet; runs energy workshops in schools. SEA runs statewide energy workshops for teachers.
Arizona	Tillman E. Turley Director of Energy/ Environmental Education Services Dept. of Education 1535 West Jefferson Phoenix, AZ 85007 602-255-4810 800-352-4558 (hotline)	Patricia Wing Education Planner Arizona Office of Energy Programs 1700 W. Washington Room 504 Phoenix, AZ 85007 602-255-3303 800-352-5499 (hotline) Solar ed: Don Osborn 602-255-3682	Barbara Border Deputy Assoc. Director of Vocational Education Arizona Dept. of Education 1535 W. Jefferson Phoenix, AZ 85007 602-255-5106	SEA has **My Energy is Your Energy** booklet; maintains reference library; lends films; provides inservice teacher training; provides technical assistance in program development. SEA has free solar and conservation publications (write for list.) Ariz. Solar Energy Comm. (502) West Wing, Capitol Twr., 1700 W. Washington, Phoenix 85007) has consumer guides.
Arkansas	Helen Holmes Economic, Energy, Environmental & Conservation Education Coordinator Dept. of Education State Education Bldg. Room 104-W Little Rock, AR 72201 501-371-2061	Carol Gaddy Education Coordinator Arkansas Energy Office 3000 Kavanaugh St. Little Rock, AR 72205 501-371-1370 1-800-482-1122 Solar ed: Carolyn Davis 501-371-1370	Charles Easley Supervisor Trade and Industrial Education State Education Bldg. Capitol Mall Little Rock, AR 72201 501-371-2371	SEA sponsors state-wide workshops, has held 100 seminars in public schools. SEO maintains film/ reference library; energy specialists on hotline. **Arkansas & Energy: A Look At The Alternatives** available from Arkansas Ecology Community Center, 1852 Cross St., Little Rock, AR 72206 for $4.50.
California	Rudolph Schafer Environmental Education Manager Dept. of Education 721 Capitol Mall, 3rd Floor Sacramento, CA 95814 916-323-0561	Stephanie Bradfield Asst. Director for Communications Calif. Energy Comm. 1111 Howe Ave. Sacramento, CA 95825 916-920-6430 Solar ed: Janice Jacobson 916-445-1803	Arthur C. Johnson Energy Specialist Chancellor's Office Calif. Community Colleges 1238 S Street Sacramento, CA 95814 916-445-8283	SEA publishes curriculum guide and energy pubs; field testing K-12 materials package; offers funds to agencies and schools to develop programs; maintains energy resource library (contact Dr. E. Railton, Cal. State Hayward); lends films including "1000 Suns;" has 58 county resource people.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Colorado	Robert Ewy Project ACCESS Colorado Department of Education State Office Bldg. Colfax and Sherman Denver, CO 80208 303-839-2232	John Lansdowne Program Director Colorado Office of Energy Conservation 1600 Downing St., 2nd Floor Denver, CO 80218 303-839-2507 Solar ed: Peggy Wrenn 303-839-2507	Dan Luna Coordinator Special Planning Projects Colorado State Board of Community Colleges and Occupational Education 1313 Sherman St., 2nd Floor Denver, CO 80203 303-839-3192	SEA/Project ACCESS provides energy curriculum materials free to teachers; networking assistance in finding materials, human resources. SEO offers energy publications (many free) and maintains reference library. Energy films at Denver Public Library.
Connecticut*	Sigmund Abeles Science Consultant State Dept. of Education PO Box 2219 Hartford, CT 06115 203-566-4825	Carolyn West Program Manager Public Information Ofc. of Policy & Mgmt. Conn. Energy Division 80 Washington St. Hartford, CT 06115 203-566-5803/7038 800-842-1648 (hotline) Solar ed: Virginia Judson 203-566-5898/8465	John B. Farrell Consultant, Bureau of Vocational-Technical Schools State Dept. of Education State Office Bldg. Box 2219 Hartford, CT 06115 203-566-3323	SEA provides free energy handouts to in-state teachers; write SEO for list of energy publications and conservation films. Contact SEA about teacher inservice workshops; SEO for information on general energy workshops.
Delaware	Jack Cairns State Supervisor, Science/Environmental Education Delaware Dept. of Public Instruction PO Box 1402 Dover, DE 19901 302-736-4885	Natalie Antonov Energy Extension Service Assistant 56 The Green Dover, DE 19901 302-736-5644 800-282-8616 (hotline) Solar ed: Dan Anstine 302-736-5644	Margaret Stallings Mgr., Management and Communications Inst. of Energy Conversion University of Delaware One Pike Creek Center Wilmington, DE 19808 302-995-7155	Elementary, secondary curriculum materials developed by SEA and SEO available in microfiche from Bureau of Archives and Records, PO Box 1401, Dover, DE 19901. SEO does slide show presentations and clinics.
District of Columbia	Mary Harbeck Supervisor for Science K-12 Langdon Elementary Sch. Competency Based Curriculum Center 20th & Evarts Sts., NE Washington, DC 20018 202-576-6580	Chelsye Williams Public Info. Spec. D.C. Energy Unit Office of Planning & Development 1420 New York Ave. NW, 2nd Floor Washington, DC 20005 202-727-1832 202-724-2100 (hotline) Solar ed: Vince Kosker 202-889-7932	David L. White, Dir. Div. of Career Develop. Programs Presidential Bldg. 415 12th St., NW, Rm. 904 Washington, DC 20004 202-724-4178/4182	SEA is developing an energy conservation program in the schools in conjunction with DC Citizens for Better Public Education (202-484-7030); offers free loan films. SEO provides speakers; maintains reference library.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Florida*	C. Richard Tillis Director Ofc. of Environmental Education Florida Dept. of Education Park 20 West Tallahassee, FL 32304 904-488-6547	Rosalyn B. Tillis Energy Educ. Coord. Governor's Energy Ofc. Information Center The Capitol Tallahassee, FL 32301 904-488-6143 Solar ed: Charles Johnson 305-782-0590	Tal Rushing Program Director Industrial Education Dept. of Education Knott Building Tallahassee, FL 32304 904-488-0484	Florida Master Plan and Action Guide for Energy Education available from SEA. Contact SEO for list of energy publications, also available through County Information Centers at Ag. Extension Offices. "Driving Habits" available from license bureaus. SEO can provide speakers.
Georgia	Dallas Stewart Science Coordinator Georgia Dept. of Education State Office Bldg. Atlanta, GA 30334 404-656-2576	Liz Robertson EES Coordinator Office of Energy 270 Washington St. SW Atlanta, GA 30334 404-656-5176 Solar ed: Rene Dziejowski 404-656-5176	Robert Mabry Coordinator Program Development Division State Dept. of Education State Office Bldg., Rm. 333 Atlanta, GA 30334 404-656-2547	SEA curriculum centers have materials on loan. SEO distributes publications; conducts weatherization workshops; provides outreach staff.
Hawaii	Judith Pool Program Specialist, Environmental Ed. 1270 Queen Emma St. Room 1102 Honolulu, HI 96813 808-548-5959 808-833-6959 (hotline—Energy Resource Ctr.)	James Harpstrite Director, Hawaii Energy Project Univ. of Hawaii 1776 University Ave. Honolulu, HI 96822 808-948-6831 Solar ed: Carolyn Olson 808-548-4080	Paul C. Yuen Director, Hawaii Natural Energy Inst. University of Hawaii Honolulu, HI 96822 808-948-8890 **Also:** Marie Wunsch Coordinator, Energy Education Projects Ofc. of the Chancellor for Community Colleges 808-948-7471	SEA field testing energy modules for K-6. (7-12 modules to be tested by Fall 1981.) Energy Resource Center is clearinghouse for materials and conducts teacher workshops. Call hotline for descriptive brochure. Films, filmstrips, videotapes at SEA film library, state library, and universities.
Idaho	Karen Underwood Consultant for Proficiency Testing Idaho Dept. of Education Len B. Jordan Bldg. 650 W. State St. Boise, ID 83720 208-334-2281	Angela Neitzel Public Info Officer Idaho Office of Energy Statehouse Boise, ID 83720 208-334-3406	James M. Cassetto Prof. of Industrial Educ. University of Idaho Industrial Education Bldg. Moscow, ID 83843 208-885-6492	Info on **Idaho Energy Conservation Resource Guide**; in-service workshops available from SEA. From SEO: Infusion units on energy for K-6, 7-10, 10-12; resource guide for libraries; other energy publications and reference materials; some films and slide/tape shows available.
Illinois*	Donald Roderick Educational Consultant Program Planning & Development Ill. State Board of Education 100 N. First St. Springfield, IL 62777 217-782-2826	Steve Thomas Manager, EES Division Institute of Natural Resources 325 West Adams St. Springfield, IL 62706 217-785-2800 Solar ed: Patty Donahue 217-785-0013	Jack O. Williams Head Consultant, Emerging Programs State Board of Education Special Programs Section 100 N. First St., E-425 Springfield, IL 62777 217-782-5098	Energy fact sheets and other publications available through Energy Extension Services at county Coop. Extension offices. Bottle Bill handout available to teachers from SEA. SEA conducts citizen workshops; trains energy education consultants to work with local teachers. SEO provides transportation workshops.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Indiana	Joe Wright Energy Education Consultant Dept. of Public Instruction Division of Curriculum State House, Rm. 229 Indianapolis, IN 46204 317-927-0111	Linda Shapiro Residential & Educational Coordinator Ind. Dept. of Commerce Energy Group 440 N. Meridian Indianapolis, IN 46204 317-232-8940 Solar ed: C.L. Warren 317-232-8940	Geneva Fletcher Dept. State Dir. of Vocational Education 401 Illinois Building 17 West Market St. Indianapolis, IN 46204 317-232-1810	SEA has "Energy Education Cadre" of 10 classroom teachers to help other educators; publishes energy newsletter; is implementing K-12 curriculum; lends classroom energy display. Ind. Energy & Education Comm., 1117 W. 10th, Marion, IN 46952 publishes newsletter; clearinghouse for state energy education info.
Iowa	Joan Overton/ Duane Toomsen Energy Consultants Instruction & Curriculum Division Iowa Dept. of Public Instruction Grimes State Ofc. Bldg. Des Moines, IA 50319 515-281-3265	Tony Heiting Research Director Iowa Energy Policy Council Capitol Complex Lucas Bldg. Des Moines, IA 50319 515-281-4307 800-532-1114 (solar hotline)	Duane Toomsen Consultant, Curr. Div. Or: Ronald D. Jarchow Chief, Instructional Services Iowa Dept. of Public Instruction Grimes Office Building Des Moines, IA 50319 515-281-3146	From SEA: results of energy education survey; K-12 energy program; film catalog. SEA sponsors inservice energy workshops; has trained 1/3 of Iowa elementary teachers with "Energy Conservation Activity Packet." SEO provides energy publications; maintains speakers bureau and public reference library.
Kansas	Charles Nicholson Coordinator, Educational Assist. Sec. Kansas Dept. of Educ. 120 East 10th Topeka, KS 66612 913-296-3851	Kay McEnulty Information Specialist Kansas Energy Office 214 W. 6th St. Topeka, KS 66603 913-296-2910 800-432-3537 (hotline) Solar ed: David Mayse 913-296-2496	Edwin Henry Ind. Specialist Industrial Education Vocational Educ. Admin. State Dept. of Education 120 E. Tenth Street Topeka, KS 66612 913-296-4919	SEO provides energy materials (alternative energy, conservation, insulation, list of energy information sources); maintains public reference library, film library (including "Featherfoot," a film on energy-efficient driving) and speakers bureau.
Kentucky	Nancy Theiss Program Manager Environmental Educ. Dept. of Education 1829 Capital Plaza Tower Frankfort, KY 40601 502-564-2672	Bob Johnston Director, Div. of Conservation Ky. Dept. of Energy PO Box 11888 [illegible]orks Pike Lexington, KY 40578 606-252-5535 Solar ed: Ralph Dennis 606-252-5535	Charles D. Wade, Director Program Development Division Or: Pat White, Director Industrial Education Unit Bureau of Vocational Education Capital Plaza Tower Frankfurt, KY 40601 502-564-3775	From SEA: **Energy Conservation Activities for the Classroom**, K-12 and **Teacher's Guide to Energy Resources in KY**. SEA has curriculum lab; runs teacher training workshops in energy; supports energy conferences. SEO has energy publications, maintains speakers bureau, lending library, small film library; holds workshops on request.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Louisiana	Don McGehee Science Supervisor Louisiana Dept. of Education PO Box 44064 Baton Rouge, LA 70804 504-342-3419	Diane Duchamp Natural Resources Project Specialist Louisiana Dept. of Natural Resources PO Box 44156 Capitol Station Baton Rouge, LA 70804 504-342-4498 Solar ed: Mike French 504-342-4594	Cleveland Marchand Education Specialist Vocational Education Division PO Box 44064 Baton Rouge, LA 70804 504-342-3921	**K-8 Energy Conservation Activities Guide** has been published by SEA. SEO provides energy posters and student materials; provides speakers; conducts energy workshops for teachers and low-income people; maintains small but growing film library.
Maine	Douglas A. Stafford Coordinator, Energy Conservation Maine Dept. of Educ. Educ. & Cultural Svcs. Statehouse Station 23 Augusta, ME 04330 207-289-2061	Christina Rule Educ. Program Director Office of Energy Resources Statehouse Station 53 Augusta, ME 04333 207-289-3811 800-452-4648 (hotline) Solar ed: Renee Potosky 207-289-2196	Burt Tompkins, Instructor Northern Maine Vocational-Technical Institute Presque Isle, ME 04769 207-769-2461	SEA distributed packets to all schools to develop interest in energy education; makes energy films available through local media centers. SEO provides publications; maintains public resource library; has resource people. SEA/SEO Task Force drafting questionnaire to assess statewide energy education needs.
Maryland	Joseph Staub Energy Education Specialist Div. of Instruction Dept. of Education 200 W. Baltimore St. Baltimore, MD 21201 301-659-2000	Janet Shorey Public Information Officer Md. Energy Policy Ofc. 301 W. Preston St. Suite 1302 Baltimore, MD 21201 301-383-6810 800-492-5903 (hotline) Solar ed: Susan Blumenstein 301-383-6810	Joseph Staub Specialist, Energy Education State Dept. of Education 200 W. Baltimore St. Baltimore, MD 21201 301-659-2000	From SEA: **Energy Education Resources Guide;** quarterly energy education newsletter; Maryland energy slide show. SEA runs inservice and summer workshops; circulates League of Women Voters' puppet show. From SEO: speakers and publications, reference and film library.
Massachusetts	Max Bogart Assoc. Commissioner of Education Mass. Dept. of Educ. 31 St. James Ave., Room 539 Boston, MA 02116 617-727-5759	Mary Bleckwehl Mass. Exec. Office of Energy Resources 94 State St. Springfield, MA 01103 413-739-9615 800-922-8265 (hotline) Solar ed: Barbara Scheller 617-727-7297	Anthony Cipriano Bureau Director Bureau of Post Secondary and Adult Education Mass. Dept. of Education 31 St. James Ave. Boston, MA 02116 617-727-8143	SEA booklet **Energy Ideas for School Curricula.** SEA provides energy handouts; maintains reference libraries in regional education offices; sponsors energy workshops and conferences (parents welcome). SEO maintains reference library; helps locate resource people; assists in putting workshops together.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Michigan	Teressa Staten Interim Supervisor Instructional Specialist Programs MI Dept. of Education PO Box 30008 Lansing, MI 48909 517-373-3302	Karen M. Longe Energy Educ. Coord. Energy Conservation/ Consumer Assistance Mich. Dept. of Commerce PO Box 30228 Lansing, MI 48909 517-373-0480 800-292-4704 (hotline) Solar ed: Gail Burke 517-373-6430	Edwin St. John Chief, Program Development Vocational-Technical Educ. Service Box 30009 Lansing, MI 48909	SEO has teachers guide, K-12 energy curriculum materials, Michigan-developed activity packets, a variety of general energy publications, film list; maintains reference library; refers teachers to resource people.
Minnesota*	Richard C. Clark Specialist, Science Ed. Minn. Department of Education 642 Capitol Square Bldg. St. Paul, MN 55101 612-296-4071	Jeremy DeFiebre Information Ctr. Spec. Minnesota Energy Agency 980 Amer. Center Bldg. 150 East Kellogg Blvd. St. Paul, MN 55101 612-296-9706 Solar ed: John Dunlop 612-296-4737	Jerome Schmehl Adult Energy Education Div. of Vocational Education Capitol Square Bldg. 550 Cedar Street St. Paul, MN 55101 612-296-6516	SEO provides handouts; maintains reference library and operates regional energy information centers (addresses available from SEO); provides non-classroom speakers; has developed adult education modules.
Mississippi	Mike Carothers Science & Environmental Consultant Instructional Services Miss. Department of Education PO Box 771 Jackson, MS 39205 601-354-6876	Carol Perry Energy Extension Ctr. PO Box 5406 Mississippi State, Mississippi 39762 601-325-3137 800-962-2310 (SEO hotline) Solar ed: Sheila Molony 601-961-5067	Ralph Caldwell Technical Education **Or:** Bobby Henderson Trade and Industrial Educ. Vocational-Technical Education PO Box 771 Jackson, MS 39205 601-354-6925	From SEA: bibliography of energy materials for teachers (contact Mike Carothers). Energy Extension Center has series of 10 curriculum guides for middle, secondary programs; **Each One Teach One** materials, featuring the "Energy Grunch," for elementary teachers; is developing resource and inservice training guides.
Missouri	Robert M. Taylor Director of Health, Phys. Educ., and Environmental Educ. Dept. of Elementary & Secondary Education Box 480 Jefferson City, MO 65102 314-751-2664	John Robinson Clearinghouse Coordinator Mo. Department of Natural Resources PO Box 1309 Jefferson City, MO 65102 314-751-4000 800-392-0717 (hotline) Solar ed: Herb Wade 314-751-4000	Robert A. Robinson Dir. of Industrial Education Dept. of Elementary & Secondary Education PO Box 480 Jefferson City, MO 65101 314-751-2584	SEA provides curriculum and materials information; puts out newsletter which covers energy topics. SEO publications include 8 "bright ideas" on conservation and factsheets. SEO provides resource people, workshops on request; maintains reference library; lends films.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Montana	Edward Eschler Social Studies & Environmental Education Consultant Office of Public Instruction State Capitol Helena, MT 59601 406-449-2543	Louise Moore Home Energy Specialist Energy Division Montana Dept. of Natural Resources 32 South Ewing St. Helena, MT 59601 406-449-3940 Solar ed: Kye Cochran 406-259-1958	Jeff Wulf Trade and Ind. Consultant Dept. of Vocational-Occupational Services Office of Public Instruction State Capitol, Rm. 106 Helena, MT 59620	SEO sponsors week-long summer energy camp for 7th graders; provides resource people to schools on request. SEA conducts teacher inservice workshops; has consultants who work with school districts to implement education programs; publishes newsletter.
Nebraska	Don Woodburn Science Consultant Nebraska Department of Education PO Box 94987 301 S. Centennial Mall Lincoln, NE 68509 402-471-2446	Gary Lay Education Coordinator Nebraska Energy Office PO Box 95085 Lincoln, NE 68509 402-471-2867 Solar ed: Bob Youngberg 402-472-3414	Ronald Jantzi Energy Educ. Coordinator Supervisor, Trade and Ind. Education Dept. of Vocational Educ. 301 Centennial Mall, S. 8th Box 94987 Lincoln, NE 68509 402-471-2295	From SEO: **Energy Resource Guide** and other energy publications; listing of 19 Education Service Units which distribute materials to school districts; basic training units (7-12) free to state teachers; reference library; has produced TV documentaries. County Extension agents and state universities also provide energy publications.
Nevada	Jack O'Leary Science Education Consultant Nevada Dept. of Education 400 W. King Street Carson City, NV 89710 702-885-5700	Kelly Jackson Deputy Director Nevada Dept. of Energy 400 W. King Street Suite 106 Carson City, NV 89710 702-885-5157 Solar ed: Bob Loux 702-885-5157	Doug Smith, Ext. Spec. in Energy & Safety Agricultural and Industrial Mechanics Bldg. 910 Valley Road Reno, NV 89512 702-784-6600	SEO provides energy publications (also available in libraries and shopping malls); provides speakers to accompany energy films; is developing slide show.
New Hampshire*	Robert Holt Task Force Chairman Consultant for Trades & Industrial Educ. Dept. of Education 105 Loudon Rd. Concord, NH 03301 603-271-3587	Carol Waters Director, Education Outreach Division Governor's Council on Energy 2-1/2 Beacon St. Concord, NH 03301 603-271-2711 800-852-3466 (hotline) Solar ed: James McConaha 603-271-2711	Robert S. Holt Consultant, Trade and Industries Div. of Vocational-Technical Education State Dept. of Education 105 Loudon Rd. Concord, NH 03301 603-271-3587	From SEO: selected resource materials for educators; driver training materials. Energy and Man's Environment has been contracted for curriculum materials.
New Jersey*	W. Wayne Conrad Office of Planning and Development N.J. Dept. of Educ. 225 West State St. Trenton, NJ 08625 609-292-4442	Frank Monachello Energy Analyst New Jersey Dept. of Energy 101 Commerce St. Newark, NJ 07102 201-648-3901 800-492-4242 (hotline) Solar ed: Sharon Spector 201-648-3594	Leon Colavita School-Indus. Coordinator Div. of Vocational Education State Dept. of Education 225 W. State St., Rm. 332 Trenton, NJ 08625 609-292-6325	SEA developing coordinated dissemination capacity for energy-related curricula; vocational education division preparing course for solar installers. Reference materials at Education Improvement Centers in Morris Plains, Princeton, W. Orange, and Sewell. From SEO: energy publications and newsletter; workshop info; speakers; residential slide show.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
New Mexico	B.K. Graham Science and Conservation Specialist Dept. of Education State Education Bldg. Santa Fe, NM 87503 505-827-5391	Walter Smith Administrator New Mexico Energy and Minerals Dept. Energy Conservation & Management Division PO Box 2770 Santa Fe, NM 87501 505-827-5621 800-432-6782 (hotline) Solar ed: Stephanie Paladino 505-983-2861	Douglas Richardson Superintendent Trades and Industry NM Dept. of Education Santa Fe, NM 87503 505-827-3151	EES provides energy materials; maintains list of resource people. Colleges and universities are developing energy education materials and conducting teacher workshops. Some utilities provide classroom demonstrations and workshops for teachers.
New York	Rose Ann Fogarty Solar Energy Education Project Room 302EB NY State Department of Education Albany, NY 12234 518-473-1965	Sandy Shuman Energy Extension Specialist NY State Energy Ofc. 2 Rockefeller Plaza Albany, NY 12223 518-474-4083 800-342-3722 (hotline) Solar ed: Rose Ann Fogarty 518-473-1965	Thomas P. Oliva, Assoc. Bureau of Trade and Tech. Education NY State Education Dept. 99 Washington Ave., Rm. 1623 Albany, NY 12230 518-474-3973	From SEA: **Watts Available in Energy Education** (biblio.); 7-12 solar curriculum; **Living Within Our Means—Energy and Scarcity** (K-12 activities); info on microfiche energy materials and Project Gift film library. From SEO: materials on alternative energy; poster contest; speakers bureau; resource people; free film loans.
North Carolina*	Shirley Ann Watkins Science Education Consultant Dept. of Public Instruction Room 284 Educ. Bldg. Raleigh, NC 27611 919-733-3694	Lillie Murdock Chief of Energy Information Section NC Energy Division Department of Commerce PO Box 25249 Raleigh, NC 27611 919-733-2230 800-662-7131 (hotline) Solar ed: John Manuel 919-733-4492	Ted R. Rollins Trade and Industrial Ed. Div. of Vocational Education Dept. of Public Instruction Education Building Raleigh, NC 27611 919-733-7421	SEA distributes free classroom instructional materials; operates clearinghouse for energy curriculum info; operates K-8 "Energy Wise" program and in-service training workshops; lends slide presentation. SEO has conservation booklets, newsletter; lends films from its reference library.
North Dakota*	John Caldwell Energy Education Dir. Center for Teaching and Learning Univ. of North Dakota Grand Forks, ND 58202 701-777-3155	Sherry Herman Energy Conservation Specialist Federal Aid Coordinator Office Energy Management & Conservation Programs 1533 North 12th St. Bismarck, ND 58501 701-224-2250 Solar ed: John Conrad 701-224-2250	Carroll Burchinal State Dir., Vocational Education State Board for Vocational Education 900 E. Boulevard Bismarck, ND 58505 701-224-3180	Univ. of ND Ctr. for Teaching and Learning has grad. programs for teachers; publishes newsletter; maintains AV and print resource center; makes referrals to resource people. SEO provides K-12 curr. materials; list of resource people; conservation and alternative resource pubs; inservice workshop assistance; films.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Ohio*	John Hug Consultant, Environmental Education Ohio Dept. of Educ. 65 S. Front St. Rm. 801 Columbus, OH 43215 614-466-5015	Steve Frisbey Ohio Dept. of Energy 30 East Broad St., 34th Floor Columbus, OH 43215 614-466-7915 800-282-9234 (hotline) Solar ed: Leon Winget 614-466-8277	J.V. Gill Adult Apprenticeship and Technical Education Trade and Industrial Education 65 S. Front St., Rm. 914 Columbus, OH 43215 614-466-2901	SEA provides single copies of energy education materials free; energy curriculum materials for teachers; resource materials. Inservice workshops planned. SEO offers energy factsheets, film loans.
Oklahoma	Larry McKinney Science Specialist Oklahoma Department of Education 2500 N. Lincoln Oklahoma City, OK 73105 405-521-3361	Scott Julian Energy Mgmt. Officer Okla. Dept. of Energy 4400 N. Lincoln Blvd. Suite 251 Oklahoma City, OK 73105 405-521-3941 Solar ed: Jim Muehlenweg 405-521-3941	Bill White Energy Consultant Oklahoma State Dept. of Vocational and Technical Education 1515 West Sixth St. Stillwater, OK 74074 405-377-2000 X385	From SEA: K-12 resource materials guide (including films) and curriculum guide. SEO provides 1-12 curriculum guide, handouts, van presentations. Slide shows available from Oklahoma State Univ. Coop. Extension.
Oregon	Claudia McDuffie Specialist, Energy/ Environmental Educ. Oregon Department of Education 700 Pringle Pkwy. SE Salem, OR 97310 503-378-3890	Owen Osborne Energy Program Leader Oregon Energy Extension Service 114 Dearborn Hall Oregon State University Corvallis, OR 97331 503-754-3004 Solar ed: Rich Gallagher 503-378-6972	Howard Brock Specialist Conservation, Forest Products, Service and Energy Dept. of Education 700 Pringle Pkwy. SE Salem, OR 97310 503-378-3594	SEA resource guide (includes films) being updated. Energy curriculum suggestions included in SEA handbook. SEA planning regional energy libraries for school and public use at community colleges. EES provides speakers, makes referrals.
Pennsylvania	John J. McDermott Senior Science Advisor Bureau of Curriculum Services Pennsylvania Dept. of Education 333 Market St., 8th Fl. Harrisburg, PA 17126 717-787-7320	Edward Bigelow Acting Deputy Director of Management and Administration Governor's Energy Council 1625 North Front St. Harrisburg, PA 17102 717-783-8610 Solar ed: Carol Cochran 717-783-2976	John Brandt, Supervisor Trade and Industrial Educ. Bureau of Vocational Education Dept. of Education 333 Market Street Box 911 Harrisburg, PA 17108 717-783-6960	SEA's K-12 energy curriculum (which has been adopted by 6 other states) free if requested on school letterhead; others inquire about cost. SEA updating **Electrical Generation: Policies and Prospects.** SEA will identify local speakers; SEO provides inservice training.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Rhode Island	Diane Devine Program Consultant Rhode Island Dept. of Education 235 Promenade St. Providence, RI 02908 401-277-2821	Janice McClanaghan Technical Information Specialist Governor's Energy Ofc. 80 Dean St. Providence, RI 02903 401-277-3370 401-277-3773 (RI residents may call collect) Solar ed: Bob Ericson 401-277-3370	Edward Handy Consultant Bureau of Vocational-Technical Education Dept. of Education 22 Hayes St. Providence, RI 02908 401-277-2691	SEA offers annotated bibliography of energy materials; information on teacher workshops. SEO has resource guide (with film listings) for teachers; conducts teacher workshops; provides resource people.
South Carolina	Alice Linder Environmental & Energy Education Consultant South Carolina Dept. of Education 803 Rutledge Bldg. Columbia, SC 29201 803-758-2652	Lisa McCalla Public Info. Spec. Governor's Office Division of Energy Resources 1122 Lady St., Rm. 1120 Columbia, SC 29201 803-758-2050 1-800-922-5310 (hotline) Solar ed: Roy Shive 803-758-8110	Earle W. Moore Or: Dusty Rhoads South Carolina State Board for Technical and Comprehensive Education 1429 Senate Street Columbia, SC 29201 803-758-5794	SEA has free energy publications for state teachers; holds teacher workshops; provides free films and instructional TV programs to teachers. SEO provides free energy education materials; resource people.
South Dakota	Jim Hauck Science Director Dept. of Elementary & Secondary Education Kneip Bldg. Pierre, SD 57501 605-773-3655	Kay Olson State Conservation Program Director Office of Energy Policy Capitol Lake Plaza Pierre, SD 57501 605-773-3603 800-592-1865 (hotline) Solar ed: Verne Brakke 605-773-3603	Dan Elwood Curriculum Coordinator Div. of Vocational Educ. Richard F. Kneip Bldg. Pierre, SD 57501 605-773-3423	SEA has lists of energy materials and films, curriculum programs; holds teacher workshops on request. SEO has conservation handouts; provides resource people.
Tennessee	Joe Minor Chief of Curriculum Services Tenn. State Dept. of Education 117 Cordell Hull Bldg. Nashville, TN 37219 615-741-2265	Cynthia Oliphant Chief of Energy Conservation Programs Tenn. Energy Authority 226 Capitol Blvd. Bldg., Rm. 710 Nashville, TN 37219 615-741-6671 800-342-1340 (information center) Solar ed: Clinton Berry 615-741-6671	Guy E. Wilmoth Director Curriculum Development State Dept. of Education Div. of Vocational-Technical Education 205 Cordell Hull Bldg. Nashville, TN 37219 615-741-3446	SEA distributes **Ideas and Activities for Teaching Energy Conservation** (7-12) to public schools; provides specialists to work with public and private schools; lends films. SEO provides handout materials; is developing reference library; lends films.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Texas*	Joe Huckstein Science Consultant Texas Education Agency Div. of Curriculum Development 201 East 11th St Austin, TX 78701 512-475-2608	Christina Roitsch Director of Texas Energy Extension Service Texas Energy & Natural Resource Advisory Council 411 West 13th St., Suite 804 Austin, TX 78701 512-475-5407 Solar ed: Russel Smith 512-443-2528	Dan Bristow Acting Director Research Coordinating Unit Texas Education Agency 201 East 11th St. Austin, TX 78701 512-475-6205 Or: Joseph H. Huckstein Consultant Instructional Services Texas Education Agency 512-475-2608	SEA's energy education packets (with transparencies, slides, tapes) distributed at teacher training sessions at educational service centers throughout state (contact SEA for locations). Centers have film libraries. **Energy Resources of Texas** curriculum materials available from Bur. of Economic Geology, Univ. of Texas, Univ. Station, Box X, Austin, TX 78712.
Utah	Kerry Nelson Project Director Energy Conservation Education Utah State Office of Education 250 East 5th South Salt Lake City, UT 84111 801-533-5891	Alene Bentley Public Information and Education Specialist Utah Energy Office Empire Bldg., Suite 101 231 East 400 South Salt Lake City, UT 84111 801-533-5424 Solar ed: Kerry Faigle 801-533-5424	David S. Gailey Coordinator Postsecondary Education Utah State Ofc. of Education 250 East 500 South Salt Lake City, UT 84111 801-533-5371	SEA has K-12 energy curriculum; provides energy experts and speakers for classrooms. SEO holds community seminars and workshops; maintains reference library.
Vermont	George Tanner Program Coordinator Science, Energy, and Environmental Educ. Vermont Dept. of Educ. 120 State St. Montpelier, VT 05602 802-828-3111	Christopher Owen Information and Education Specialist State Energy Office State Office Bldg. Montpelier, VT 05602 802-828 2393 800-642-3281 (hotline) Solar ed: Richard Cambio 802-828 2393	Richard E. Higgins State Dept. of Education Div. of Vocational-Technical Education State Office Bldg. Montpelier, VT 05602 802-828-3101	SEA provides curriculum materials; conducts workshops on request and statewide teacher workshops; provides resource people. SEO provides free energy handouts; lends films and slide shows; maintains reference library.
Virginia*	Joseph Exline Associate Director of Science Services Va. Dept. of Education PO Box 6Q Richmond, VA 23216 804-786-2676	Kathy Erickson Information Center Supervisor Virginia Energy Office 310 Turner Rd. Richmond, VA 23225 804-745-3245 1-800-552-3831 (hotline) Solar ed: Kathy Erickson 804-745-3245	Roy A. Carter Supervisor Trade and Industrial Education State Dept. of Education PO Box 6Q Richmond, VA 23216 804-786-2645	SEA developing curriculum materials that use energy problem as a teaching device; distributes handouts. SEA specialists help plan school workshops. SEO provides teacher and student materials, energy brochures, home energy packets; maintains reference library; conducts teachers workshops; lends energy films.

STATE	STATE EDUCATION AGENCY CONTACT (SEA)	STATE ENERGY OFFICE CONTACT (SEO)	VOCATIONAL EDUCATION CONTACT	ENERGY-RELATED CURRICULA, PUBLICATIONS, OTHER RESOURCES
Washington	David Kennedy Supervisor of Science & Environmental Education Programs Superintendent of Public Instruction Old Capitol Bldg. Olympia, WA 98504 206-753-2574	Carol Costello Wash. State Energy Ofc. 400 East Union Ave., 1st Floor ER-11 Olympia, WA 98504 206-754-1350 Solar ed: Tony Angell 206-365-0433	William Daniels Director Northwestern Vocational Curriculum Management Center Bldg. 17 Airdustrial Park Olympia, WA 98504 206-753-0879	SEA has a variety of K-12 materials (most free to instate teachers); holds inservice workshops; assists school districts in finding speakers; lends films to teachers. SEO provides handouts; maintains reference library; helps locate speakers.
West Virginia*	Bob Seymour Curriculum Development Specialist—Science West Virginia Dept. of Education Bldg. 6, Rm. B-330 Charleston, WV 25305 304-348-7805	Rebecca Scott Information Rep. West Virginia Fuel and Energy Office 1262-1/2 Greenbrier St. Charleston, WV 25311 304-348-8860 800-642-9012 (hotline) Solar ed: Charles Kaufman 304-348-8860	Fred Harrington Coordinator Curriculum Development Or: Don Manglass Trade and Industrial Specialist Bureau of Vocational, Technical and Adult Education Bldg. 6, Rm. B-243 Charleston, WV 25305 304-348-7880	SEA runs statewide fall workshop for science, social studies teachers; local workshops on request. Distributes **Do We Understand Energy** (guidelines for developing course objectives, activities), other materials, films. SEO provides brochures on conservation, other topics, in quantity; maintains reference library; lends films (first priority to teachers).
Wisconsin	David C. Engleson Supervisor, Environ., Energy & Marine Education Wisconsin Dept. of Public Instruction 126 Langdon St. Madison, WI 53702 608-266-3319	Joseph Hilyard RES Information Specialist Information Center, Rm. 727 South Park St. Madison, WI 53706 608-263-7950 Solar ed: Bonnie Albright 608-266-9861	Roy Gram Program Manager Energy Education Wisc. Board of Vocational, Technical and Adult Education 4802 Sheboygan Ave., 7th Floor Madison, WI 53702 608-266-8669	SEA field testing energy units developed in cooperation with other states in the region; developing K-12 energy education plan. Bureau of Audio-Visual Instruction, 1327 University Ave., Madison, WI 53706, rents films. (Call 608-262-1644 for free catalog.) RES has factsheets; reference library.
Wyoming*	William Futrell Science Mathematics/ Environmental Education Coordinator 241 Hathaway Bldg. State Dept. of Educ. Cheyenne, WY 82002 307-777-7411	Pam Abel Energy Conservation Coordinator Wyoming Energy Conservation Office Capitol Hill Bldg. Cheyenne, WY 82002 307-777-7131 Solar ed: G. Garber 307-777-7131	William Hodgkinson Asst. Professor Industrial Arts Education Dept. of Vocational Education University of Wyoming Laramie, WY 82071 307-766-6275	SEA has curriculum materials. Science/Math Teacher Ctr. (Box 3992, Univ. Station, Laramie, WY 82071) evaluates materials; makes referrals. SEO: newsletter; library; speakers. WY Energy Exten. (1-800-442-6783) has info on workshops, films; distributes ECON kits (for developing curricula, activities).

FEDERAL SOURCES OF ENERGY AND EDUCATION ASSISTANCE

Want to find out which federal programs offer free curriculum materials? Where to get assistance to weatherize a school building? Or how to secure funds for a postsecondary program to train miners? The following guide to federal sources of energy and education assistance includes that information and much more.

Originally published by the Energy and Education Action Center in the former U S. Office of Education, this guide lists the major federal energy and education programs. The American Vocational Association has revised the original material, updating contacts, addresses, phone numbers, descriptions and eliminating programs that are no longer active and adding several new programs to the list.

The following key indicates the major *types of assistance* offered by the various programs:

A—CURRICULUM MATERIALS/DEVELOPMENT
Includes any involvement with developing or disseminating curriculum materials aimed at increasing the base of knowledge in energy. This category is limited to material used in schools (at all levels).

B—DIRECT STUDENT ASSISTANCE
Includes grants, loans, stipends for tuition and living expenses for students to pursue research or studies in the energy disciplines (energy management and engineering; conservation, fossil, nuclear, solar, geothermal and advanced energy systems; environmental sciences and safety; architecture and energy efficient design).

C—EMPLOYEE/TEACHER TRAINING
Includes any in-service education or training workshops sponsored or coordinated by the federal government to upgrade the quality of teachers (all levels) and employees (all levels). This includes teaching general awareness education, training building engineers in highly technical methods of conservation and conducting advanced energy research seminars for professors.

D—FACILITIES IMPROVEMENT
Includes those projects dealing directly with technical assistance for retrofitting, standards setting, auditing, in-kind services (personnel or equipment), weatherization of schools and government buildings, conducting retrofits and developing manuals for retrofitting.

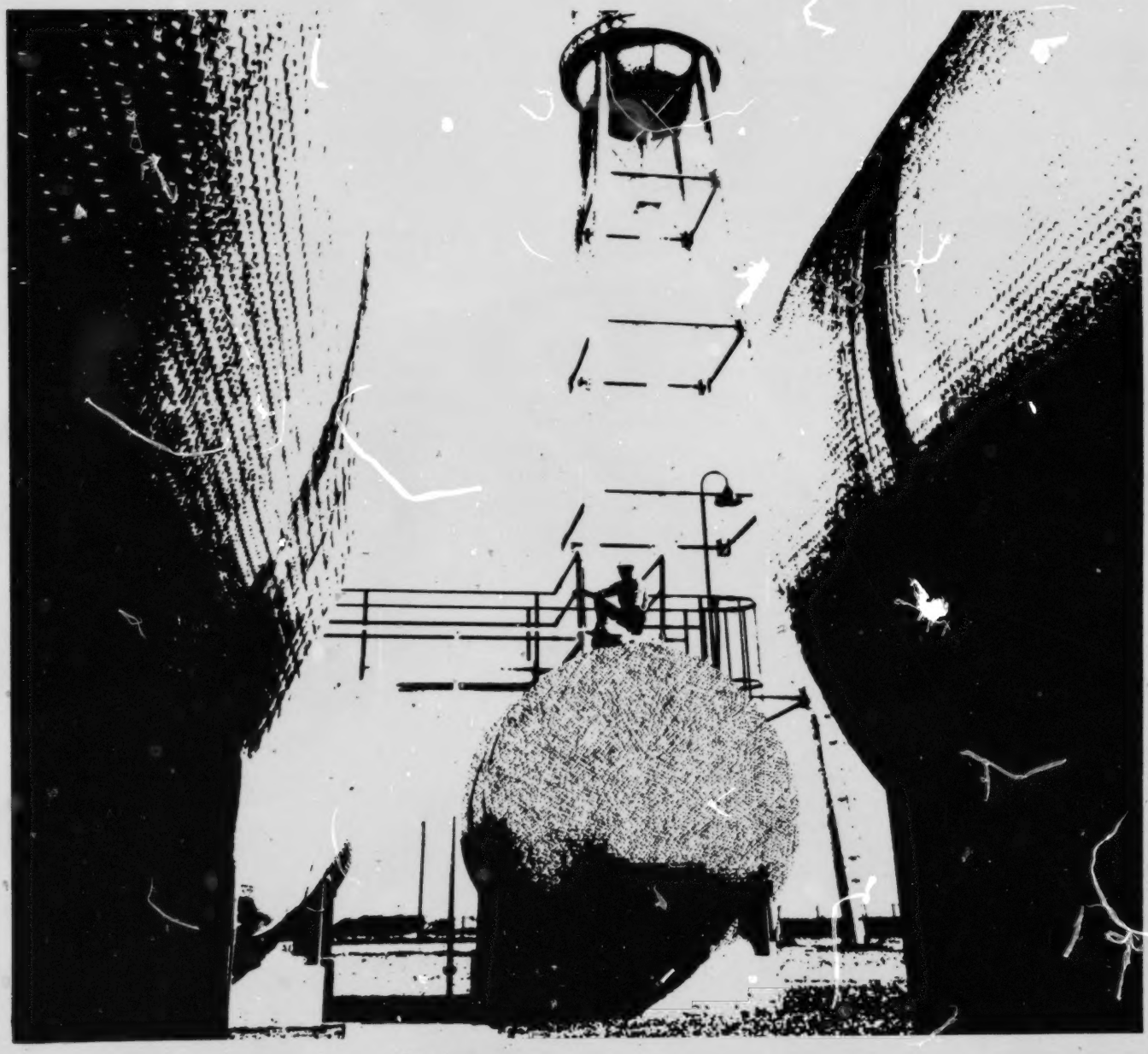
E—OUTREACH TO PUBLIC/BUSINESS SECTOR
Includes a multitude of technology transfer activities which reach the public sector to increase their awareness of the energy situation. The public sector includes homemakers, homeowners, carpoolers, small and large business owners, consumers, etc. The activities range from solar hotlines and similar information clearinghouses, citizen's workshops, published newsletters and manuals, and community action projects. This is a function of many agencies' public affairs or public relations offices.

F—RESEARCH, DEVELOPMENT, DEMONSTRATION, DATA COLLECTION AND DISSEMINATION

Includes any R & D efforts to improve the state of the art of energy technology. These efforts can be administered in-house, as well as grants and contracts let out by federal agencies to private labs, universities, foundations, etc.

G—ASSISTANCE TO LOCAL, REGIONAL AND STATE GOVERNMENTS FOR INNOVATIVE PROJECTS

Includes assistance to local and state education agencies. Federal funds in this case are administered through the state and local education agencies or regional agency offices. In order to establish eligibility, either contact the program offices in Washington, D.C., consult the appropriate regulations, or contact the person in the state education agency or regional office who is responsible for federal programs.



TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: ACTION				
Older Americans Volunteer Program, Retired Senior Volunteer Program (RSVP)	Offers older adults a meaningful life in retirement through volunteer service responsive to community needs. Volunteers serve in organizations, agencies and institutions, including courts, schools and economic development agencies.	E,G	Community agencies, public and private nonprofit agencies.	Local RSVP offices, state ACTION offices, also: Chief, RSVP/ACTION, 806 Connecticut Ave., N.W., Washington, D.C. 20525 **202-254-7607**
VISTA, University Year for Action	To provide volunteers who assist in winterization and insulation, in education efforts to teach energy saving methods, job training and placement with solar construction, greenhouse cooperatives and in legal areas concerning utility rates, pollution standards, etc.	C,E,G In-kind personnel services	Community agencies, public and private nonprofit agencies.	ACTION state offices, also: Director, VISTA/ACTION Education Programs, 806 Connecticut Ave., N.W. Washington, D.C. 20525 **202-254-5195**
National Center for Appropriate Technology	To support small grants program for community demonstration projects in energy conservation (solar, wind, methane). Outreach workers and staff develop and test technologies, write technical reports and provide assistance to groups involved in appropriate technology endeavors. Supports research and information dissemination activities.	A,C,D,E,F,G	Community ACTION agencies, community development corporations and other community-based groups.	Edwin C. Kepler, Executive Director, NCAT, Box 3838, Butte, Montana 59701 **406-494-4572**
AGENCY: COMMUNITY SERVICES ADMINISTRATION				
Emergency Energy Conservation Services	To involve low-income individuals and families (including the elderly and the near poor) in programs that promote energy conservation and seek to lessen the impact of the high cost of energy.	C,D,E,G	Community action agencies, state economic opportunities offices, nonprofit community development corporations and other public and/or private nonprofit organizations and agencies that meet ESA eligibility criteria.	Regionally or locally: Community Action Agencies, Community Action Programs, Community Development Councils, regional Community Services Administration offices, or state offices of economic opportunity. In D.C.: Richard M. Saul, Chief, Energy Officer, Community Action, Community Services Administration, 1200 19th St., N.W. Washington, D.C. 20506 **202-632-6503**
AGENCY: DEPARTMENT OF AGRICULTURE				
Cooperative Extension Service	To provide educational programs based upon local needs in the broad fields of agricultural production and marketing, rural development, home economics and youth development.	A,C,E,F Formula grants	Grants are made to designated land-grant institutions in the states. Administered by the director of the state extension service. Benefits the general public.	State and county extension service offices, land-grant universities. In D.C.: Dr. Glenda Pifer, Energy Program Coordinator, Science & Education Administration, Room 6813, USDA, Washington, D.C. 20250 **202-447-7273**

TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: DEPARTMENT OF COMMERCE				
Economic Development—Technical Assistance (University Center Program)	To provide management and technical assistance services to businesses, communities and development organizations. Develop training materials in solar energy equipping for buildings and energy conservation for businesses.	A,C,E grants; schools get grants from the Economic Development Administration to run the centers.	Universities apply for center grants. Public may contact schools for information concerning the centers' activities.	Regional EDA offices. In D.C.: Glen Fatzinger, Economic Development Administration, 14th & E St. N.W., DOC, Washington, D.C. 20230 202-377-4637
Institute of Applied Technology Energy Program	To conduct research and development in direct support of other agencies (DOE,HUD,VA,GSA, CSA). Publication and dissemination cater mostly to peers. Supports national agency conservation goals by providing technical information on energy efficiency improvements and waste reduction to government, industry and end use sectors.	F Research and development.	General public as well as federal agencies.	Copies of research pieces available from Government Printing Office: GPO, Superintendent of Documents, Washington, D.C. 20402 202-783-3238 and National Technical Information Service: NTIS, Springfield, VA 22161 202-328-5800
National Technical Information Service (NTIS)	NTIS is the central source for the public sale of government-sponsored research, development and engineering reports and other analyses prepared by federal agencies, their contractors or grantees, or by special technology groups. NTIS is also a central source for federally generated machine processable data files.	F	Individuals	National Technical Information Service, Springfield, VA 22161 202-328-5800 Downtown D.C.: National Technical Information Center, 425 13th St., Room 620, Washington, D.C. 20004
AGENCY: DEPARTMENT OF ENERGY				
Energy Extension Service	To encourage individuals and small establishments to reduce energy consumption and convert to renewable energy sources. To provide feedback to the DOE and other decision-makers regarding institutional and technological barriers to the adoption of energy-saving measures, to help reduce the impact of fuel shortages and price increases on small consumers by developing a creditable assistance and information program that facilitates the adoption of energy-saving measures.	G Grants to states to provide C,D,E activities. The following states are the pilot states: Conn., Pa., Tenn., Ala., Tex., Wyo., N. Mex., Mich., Wisc., Wash.	States apply, but the programs affect the general public.	Director, Energy Management and Extension Service; Rm 2E086, Forrestal Bldg., Washington, D.C. 20585 202-252-2344
Geothermal Technical Information	To foster development and support of the geothermal industry and technology. To increase transfer of geothermal technologies to industry.	E,G Contracts, grants, requests for information, publications.	Selective competitive contracts, RFP's and unsolicited proposals; universities may apply.	Division of Geothermal Energy, 1200 Pennsylvania Avenue, N.W., U.S. Department of Energy, Washington, D.C. 20461. Technical Information Center (TIC) Oak Ridge, Tennessee 37830

TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: DEPARTMENT OF ENERGY (*continued*)				
Technology Information Program	To hold and manage all of DOE's information coming from R&D efforts. Information is kept on data computer tapes; computer search system is called RECON and its services are offered to researchers. Information is highly technical. Specialized publications and manuals are available upon request.	D,E no grants; contracts are let out to solve information problems; no contracts for basic research.	Individuals	Technical Information Center, Box 62, Oak Ridge, Tennessee 37830 615-576-1224
Solar Energy Technology Transfer	To link DOE's solar energy R&D program to public and industrial sectors in order to stimulate the industry market of solar energy.	A,C,D,E Consumer education curriculum materials development.	Directed at a broad cross-section of multipliers or other agencies. Serves industry. Funds for contracts; accepts unsolicited proposals.	Gary Moore, Chief, Market Development Branch, Active Systems Division, Room 5G070 202-252-8127 Charles Hauer, Chief, Market Development Branch, Passive Solar Division, Room 5G044 202-252-8098 Office for Solar Applications for Buildings, Forrestal Building, U.S. DOE, Washington, D.C. 20585
Division of University and Industry Programs/Office of Energy Research	To assure and support the appropriate involvement of educators and institutions in implementing the National Energy Plan. This is accomplished by administering the following programs:			
	Faculty Development Program—provides summer workshops in energy education for elementary, high school and community college faculty.	C	Two- and four-year postsecondary institutions.	Donald Duggan, Education Programs Division, Rm. 8G082, Forrestal Bldg., DOE, Washington, D.C. 20585 202-252-5141
	Laboratory-Cooperative Program—provides support to undergraduate, graduate, faculty and students engaged in on-going research at DOE labs.	B,C,F	Students, faculty, colleges and universities.	Harry Young, Office of Energy Research, Rm. 3F077, Forrestal Bldg., DOE, Washington, D.C. 20585 202-252-6833
	Materials Development Program—provides for the development and distribution of energy education curriculum materials for schools.	A	Competitive contracts, unsolicited proposals, RFPs.	Donald Duggan, Education Programs Division, Rm. 8G082, Forrestal Bldg., DOE, Washington, D.C. 20585 202-252-5141
	Used Energy-Related Laboratory Equipment Program—provides used laboratory equipment to colleges, universities and community colleges for energy research.	D,F,C	Two- and four-year postsecondary institutions.	Larry Barker, Education Programs Division, Rm. 3F077, Forrestal Bldg., DOE, Washington, D.C. 20585 202-252-6833

TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: DEPARTMENT OF EDUCATION				
Energy and Education Action Center	Convenes conferences, meetings and seminars with education planners, administrators and support personnel to help implement energy conservation practices in school facilities. Develops seminars, workshops and meetings with curriculum developers, teachers and personnel involved with the development of supplementary materials for energy and education. Coordinates joint programs and activities in energy and education with other government departments and agencies at the local, state and federal levels. Serves as a clearinghouse and a National Information Hot Line to provide information on energy conservation and related technology practices, equipment, systems, financing, curricula, teaching requirements and vocational and professional employment opportunities.	A,C,D,F	Individuals	Dr. Wilton Anderson, Director, Energy Education Action Center, U.S. Dept. of Education, Room 1651, 400 Maryland Ave., S.W., Washington, D.C. 20202 202-472-7777
Vocational Education Basic Programs	To maintain, extend, and improve vocational education programs; to develop programs in new occupations.	A,G Formula grants	Local education agencies	Regionally or locally: state vocational education agencies, regional offices, ED. In D.C.: Dr. LeRoy Cornelson, Director, Division of State Vocational Programs, Office of Vocational and Adult Education, Dept. of Education, Room 5640, ROB 3, 7th and D Streets, S.W., Washington, D.C. 20202 202-245-3352
Vocational Programs for Persons with Special Needs	To provide vocational education programs for disadvantaged persons who have not succeeded in regular programs.	G Formula grants	Local education agencies	Regionally or locally: regional offices. In D.C.: Dr. LeRoy Cornelson, Director, Division of State Vocational Programs, Office of Vocational and Adult Education, U.S. Dept. of Education, 7th and D Streets, S.W., ROB 3, Room 5640, Washington, D.C. 20202 202-245-3352
National Diffusion Network	To promote wide dissemination and effective adoption of exemplary education programs identified by the ED Dissemination Review Panel.	G	State and local education agencies, higher education institutions and other public and nonprofit agencies.	National Diffusion Network, U.S. Dept. of Education, 400 Maryland Ave., S.W., Washington, D.C. 20202 202-245-2257

TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: DEPARTMENT OF EDUCATION (*continued*)				
Career Education	To demonstrate effective methods and techniques in career education, to develop exemplary models and to enable state education agencies to plan for career education.	A,G Project grants (contracts)	State and local education agencies, higher education institutions, and other nonprofit organizations.	Regionally or locally: Career Education State Coordinators in each state department of education. In D.C : Office of Career Education, Room 3100 ROB 3, U.S. Dept. of Education, 7th and D Streets, S.W., Washington, D.C. 20202 202-245-2284
Consumer and Homemaking Education	To help states conduct training programs in consumer and homemaking education, especially in economically depressed or high unemployment areas.	A,F,G Formula grants	Local education agencies	Regionally or locally: regional offices. In D.C.: Office of Vocational and Adult Education, U.S. Dept. of Education, 400 Maryland Ave., S.W., Washington, D.C. 20202 202-245-3352
Teacher Corps	To strengthen educational opportunities available to children in areas having concentrations of low-income families, to encourage colleges and universities to broaden their teacher preparation programs and to encourage higher education institutions and local education agencies to improve training and retraining programs for teachers and other education personnel.	C,E,G Project grants, contracts	Higher education institutions, local education agencies and state education agencies	Director, Teacher Corps, Office of Research and Improvement, U.S. Dept. of Education, Suite 720, Riviere Bldg., 400 Maryland Ave., S.W., Washington, D.C. 20202 202-653-8320
School Maintenance and Operation	To aid school districts in which federal activities or disasters have placed a financial burden.	G Formula grants	Local school districts	Director, Division of Impact Aid, Assistant Secretary for Elementary and Secondary Education, U.S. Dept. of Ed., Room 2109, FOB 6, Washington, D.C. 20202 202-245-8427
Environmental Education Program	Provides grants to public and private nonprofit organizations, agencies and institutions. These grants support developmental, demonstration and mini-grant projects to improve education about environmental issues and alternate resolutions of the issues.	A,C,G Project grants	Higher education institutions, local and state education agencies, regional educational research organizations, and other public and private nonprofit organizations (including libraries and museums)	Director, Walter Bogan, Office of Environmental Education, U.S. Dept. of Education, Room 1100, Donohoe Bldg., Washington, D.C. 20202 202-245-9231

TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: DEPARTMENT OF EDUCATION (*continued*)				
Energy Education	To aid postsecondary education institutions to carry out programs for the training of miners, supervisors, technicians (particularly safety personnel) and environmentalists in the field of coal mining technology. Funds may also be used to train individuals to install solar energy equipment.	G Formula grants	Local education agencies	State Directors of Vocational Education
Domestic Mining and Mineral Fuel Conservation Fellowships	To assist graduate students in domestic mining and mineral and miners fuel conservation, including oil, gas, coal, shale, and uranium.	B Project grants	Advanced degree candidates	Office of Postsecondary Education, Graduate Programs Branch, ROB 3 Room 3060, U.S. Department of Education, 7th and D Streets, S.W., Washington, D.C. 20202 202-245-2347
Improvement in Local Education Practice	Provides assistance to local education agencies for activities designed to address serious educational problems in elementary and secondary schools; professional development programs for teachers and administrators.	G Formula grants to state education agencies, discretionary grants by state agencies to local education agencies	State education agencies, elementary and secondary apply to Dept. of ED. Local agencies apply to state agencies.	Office of Elementary and Secondary Education, Division of State Educational Assistance, ROB 3, Rm. 3010, U.S. Dept. of Education, 7th and D Streets, S.W., Washington, D.C. 20202 202-245-2592
Indian Education Section 423 Fellowships	To assist Indian professionals and graduate students in engineering, medicine, law, business, forestry and related fields.	B Project grants	Indian students	Indian Education, Office of Elementary and Secondary Education, U.S. Dept. of Education, 400 Maryland Ave., S.W., Washington, D.C. 20202 202-245-8020
Consumers' Education	To support research and development and pilot projects designed to provide consumer education to the public and to students.	F,G Project grants (contracts)	State and local education agencies, higher education institutions, libraries and public and private groups	Dustin Wilson, Director, Consumers' Education, Dept. of Education, Rm. 1630, Donohoe Bldg, 6th and D Sts., S.W., Washington, D.C. 20202 202-653-5983
Vocational Education Research	To provide support for the National Center for Research in Vocational Education and projects for research and demonstration in vocational education.	F,G Project grants (contracts)	State boards, higher education institutions, public and private nonprofit agencies and institutions, local education agencies	Director, Division of National Vocational Programs, Office of Vocational and Adult Education, U.S. Dept. of Education, 400 Maryland Ave., S.W., Washington, D.C. 20202 202-245-9634

TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: DEPARTMENT OF EDUCATION (*continued*)				
Appalachian Vocational and other Education Facilities and Operations	To provide the people of the region with the basic facilities, equipment, and operating funds for training and education necessary to obtain employment at their best capability for available job opportunities, and to meet the objectives stated under the Appalachian Regional Development Program.	F,G Project grants (contracts)	State boards, higher education institutions, public and private nonprofit agencies and institutions, local education agencies	Appalachian state office designated by the governor. In D.C.: George Sanders, Senior Program Officer, Appalachian Reg. Comm. Unit, Special Programs, Office of Vocational and Adult Education, U.S. Dept. of Ed., 400 Maryland Ave., Washington, D.C. 20202 202-673-7874
Teacher Centers	To provide federal assistance for planning and operating Teacher Centers; to assist institutions of higher education for operating them.	C,G	Local education agencies, 90%; institutions of higher learning, 10%	Local education agencies apply through the states. Institutions of higher learning apply to Teacher Centers Program, U.S. Dept. of Education, Rm. 2010, FOB 6, Washington, D.C. 20202 202-472-5502
Improvement of Postsecondary Education	To aid postsecondary education reforms in curriculum development, teaching and administration	A,F Project grants	Postsecondary institutions and related organizations	Director, Fund for the Improvement of Postsecondary Education, U.S. Department of Education, Rm. 3123, 400 Maryland Ave., S.W., Washington, D.C. 20202 202-245-8091
Higher Education—Strengthening Developing Institutions	To strengthen teaching resources of developing institutions.	B,C Project grants	Higher education institutions	Office of Institutional Support, Division of Institutional Development, U.S. Dept. of Education, ROB 3, Rm. 2052, 7th and D Streets, S.W., Washington, D.C. 20202 202-755-1254
Higher Education—Cooperative Education	To support planning and implementation of programs alternating periods of academic study and public or private employment.	A,B Project grants	Higher education institutions	Chief, Cooperative Education Branch, Division of Institutional and State Incentive Programs, Office of Higher Education, Rm. 3053, ROB 3, 7th and D Streets, S.W., Washington, D.C. 20202 202-245-2484
Educational Television and Radio Program	To support the development production, evaluation, dissemination and utilization of innovative educational television and radio programs designed for broadcast and/or nonbroadcast uses to help children, youths or adults to learn.	Project grants (contracts)	State and local governments, public and private agencies, profit and nonprofit organizations, associations, institutions and individuals	Education Technology Development Branch, Office of Libraries and Learning Technologies, Dept. of Education, 400 Maryland Ave., S.W., Washington, D.C. 20202 202-245-9225

TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: DEPARTMENT OF EDUCATION (*continued*)				
Energy Policy and Program	To generate awareness of the dimensions and impact of energy problems, and to show participants in workshops how to accomplish energy conservation in health facilities.	C,D,F Develop manuals, hold conferences	Hospitals, hospital administrators, hospital personnel, health system agencies, professional health associations	Burt Kline, Director, Division of Energy Policy and Programs, Health Resources Administration, 3700 East-West Hwy., Rm. 522, Hyattsville, MD 20782 301-436-7263
Energy Conservation in Facilities	To contain costs in federal and non-federal health and educational facilities through energy conservation.	D,F	Funds not available for grants or contracts. Budget amounts represent estimated outlay and include personnel costs	Dr. Max Novinsky, Special Project Manager-Energy; Office of Facilities Engineering, OS/ R... 4524, HEW North, Washington, D.C. 20201 202-245-6376
AGENCY: DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT				
Section 701—Comprehensive Planning Assistance	To encourage comprehensive community planning assistance for such community activities as housing rehabilitation, energy and building, conservation and expansion of housing and housing opportunities, increased public services. This is mainly a planning assistance program for communities, including planning for schools. Funds cannot be used for physical construction activities. Training is also funded.	C,E,F,G Matching grants	Eligible agency of state and local governments areawide. Educational institutions must apply through an eligible agency	Regional and area HUD offices. Central Office: Dr. Melvin Wachs, Office of Planning, Dept. of HUD, Rm 7262, Washington, D.C. 20410 202-755-6201
Technical Assistance Programs	To assist state, areawide and local government agencies with urban-related planning and management needs in almost any area, including energy conservation, energy retrofit, training, etc. This is a new program. In most cases, funds will not be available for purposes directly related to education.	A,C,D,E,F,G	State and local government agencies	For information, schools contact Dr. Melvin Wachs, Office of Planning, Dept. of HUD, Rm 7262, Washington, D.C. 20410 202-755-6201
Solar Heating & Cooling Program	To encourage the use of solar technology on the general building market.	E,F,G Technical information as well as referrals	Individuals (some programs are run through state energy offices)	National Solar Heating & Cooling Information Center, P.O. Box 1607, Rockville, MD 20850 800-523-2929, continental U.S., except Pa. 800-462-4983-Pa. 800-523-4700-Alaska, Hawaii, Puerto Rico, Virgin Islands
Property Improvement Loan Insurance for Improving all Existing Structures and Buildings of New Nonresidential Structures	To facilitate the financing of improvements and other existing structures and the erection of new nonresidential structures.	D Guaranteed of insured loan	Owner of property to be improved (includes school boards and owners of private schools)	Any Title I approved lending institution. Do not contact HUD.

TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: DEPARTMENT OF LABOR				
Comprehensive Employment and Training Act (CETA)	To provide funds for state and local prime sponsors to provide labor through public service employment programs while CSA or other agency provides the supplies and materials for weatherization.	C,D,G	Prime sponsors	Manpower Director, Employment and Training Administration, DOL, 601 D. St., N.W., Washington, D.C. 20213 202-376-6366
Aerospace Education Services Project	To provide information about U.S. aeronautics and space research, development activities and their results, to enhance the knowledge of students and teachers and motivate them in science education and careers and enrich the regular curricula and to assist with in-service teacher training. NASA people are involved in education, not merely public relations and outreach.	A,C,E,F Contracts to develop materials, free films and teaching guides, curriculum updating, educational visits, exhibits space-mobile, lecture demonstration, speaker services, teacher education courses, counseling and career guidance educational conferences	Schools, teacher training institutions, colleges, universities, civic groups, museums and planetaria	Regional or local NASA Centers. In D.C.: Educational Service Branch, Div. of Academic Affairs, LCG/9, NASA Headquarters, Washington, D.C. 20546 202-755-3757 **publications available from GPO**
AGENCY: TENNESSEE VALLEY AUTHORITY				
Division of Energy Conservation, Conservation and Energy Management Branch, Consumer Communications	To reach the ultimate consumers of TVA power with information on energy conservation and electrical safety.	E Ads, publicity, pamphlets and displays	Individuals	Power distributor offices; Division of Energy Conservation District Offices; or Rebecca Stulez, Consumer Communications Supervisor, Conservation and Energy Management Branch, Division of Energy Conservation, TVA Chattanooga, Tenn. 37401 615-755-2746
Home Insulation Program	To spur the conservation of energy of TVA residential power consumers by offering free home energy audits; interest free loans for home weatherization and insulation measures; and low-interest loans to qualifying consumers for electric heat pump installations.	D	Individuals	Power distributor Offices; Division of Energy Conservation District Offices; or David B. Lamb, Supervisor, Home Insulation Prog., Conservation and Energy Management Branch, Division of Energy Conservation, TVA, Chattanooga, Tenn. 37401 615-755-3656

TITLE OF PROGRAM	PURPOSE OBJECTIVE-DESCRIPTIVE INFORMATION	TYPES OF ASSISTANCE	WHO MAY APPLY?	INFORMATION AND APPLICATION CONTACTS
AGENCY: TENNESSEE VALLEY AUTHORITY (*continued*)				
Commercial and Industrial Energy Audit Program	To reduce the power and energy needs of business and industry in the TVA power service area.	D	Individuals	Power distributor offices; Division of Energy Conservation District Offices; or Robert Hamby, Mgr., Commercial and Industrial Programs, Conservation and Energy Management Branch, Division of Energy Conservation and Rates, TVA, Chattanooga, Tenn. 37401 615-755-8051
Heat Pump Financing Program	To assist in the public acceptance and implementation of the electric heat pump.	E	Individuals	Power distributor offices; Div. of Energy Conservation District Offices, or Lee Culpepper, Supervisor, Heat Pump Financing Program, Conservation and Energy Management Branch, Division of Energy Conservation, TVA, Chattanooga, Tenn. 37401 615-755-8981
Energy Saver Program	To encourage the construction of energy-efficient residential dwellings.	D,E	Individuals	Power distributor offices; Div. of Energy Conservation District Offices, or Carl Adams, Supervisor, Residential Standards Unit, Conservation and Energy Management Branch, Div. of Energy Conservation, TVA, Chattanooga, Tenn. 37401 615-755-8051

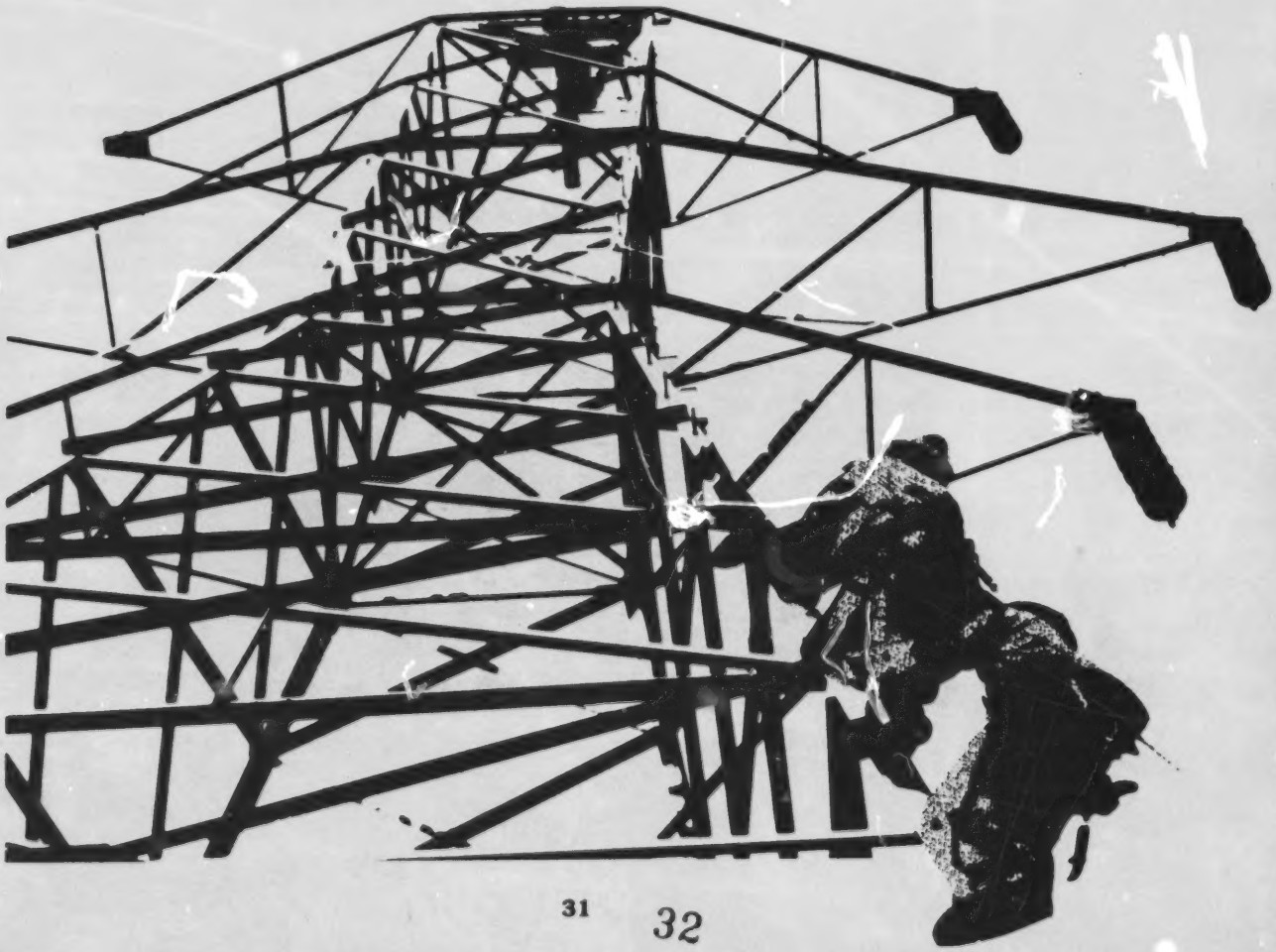
ENERGY-RELATED ORGANIZATIONS

The organizations listed in this section are included because they offer some sort of information or assistance related to energy that may be of use to vocational educators. That information or assistance may take many forms: free publications, speakers' bureau, films, workshops, technical resources. In some cases, the organization may devote most of its activities to energy issues; in others, energy-related activity may be only a small part of the group's overall pursuits.

Organizations are listed in alphabetical order. Immediately following the group's name, the letters "C", "P" or "T"—or a combination of two—appear in parentheses. These indicate the primary function of the organization:

T = Trade association
P = Professional organization or society
C = Citizen group

Inclusion of an organization in this section does not indicate an endorsement of the group's work, goals or products.



NAME	ADDRESS	ENERGY ACTIVITY	CONTACT
Air Conditioning Contractors of America (T)	1228 17th Street, N.W. Washington, D.C. 20036	Provides manuals on air conditioning for teachers. Charge. List of publications free.	Bill Harley Director of Public Information 202-296-7610
Alliance to Save Energy (P)	1925 K Street, N.W. Suite 507 Washington, D.C. 20006	Informs public on energy conservation. Brochure, "The 25% Solution;" newsletter, film, charge.	Publications Department 202-857-0666
Alternative Energy Resources Organization (C)	424 Stapleton Bldg. Billings, MT 59101	Supports renewable energy resources. Conducts workshops in Montana. Charge. Free list of publications.	Kye Cochran Executive Director 406-259-1958
Alternative Sources of Energy (C)	107 South Central Milaca, MN 56353	Serves as a clearinghouse on energy alternatives, new technical developments at intermediate technology level. Publications include technical papers series on hydropower, solar, wind, etc. Charge. Free list of publications.	Abby Marrier Public Relations Director 612-983-6892
American Association of Community & Junior Colleges (P)	One Dupont Circle, N.W. Suite 410 Washington, D.C. 20036	Collects and disseminates energy-related information of interest to community colleges through an energy communications center. Free list of curriculum materials.	James R. Mahoney Project Director 202-293-7050
American Association of Petroleum Geologists (P)	PO Box 979 Tulsa, OK 74101	Offers free brochure "What Can I Do?" on pollution. Teacher's packets for high school, 50 cents each.	Rex Blakey Communications Director 918-584-2555
American Association of Retired Persons/ National Retired Teachers Association (P)	1909 K St., N.W. Washington, D.C. 20049	Provides a variety of education and service programs in order to help the elderly conserve energy; prepares materials for professionals who work with elderly on energy costs and availability.	David Gamse Energy 202-872-4700
Americans for Energy Independence (C/P)	1629 K St., N.W. Suite 1201 Washington, D.C. 20006	Promotes energy independence; seeks primary reliance on domestic fuels. Pamphlets free except for multi-copies.	Sherry Saunders Director of Communications 202-466-2105
American Forestry Association (C/P)	1319 18th Street, N.W. Washington, D.C. 20036	Advancement of intelligent management and use of forests, soil, water, wildlife and all other natural resources, to do what is necessary for a high quality environment. First copy free of teacher's kit, 25¢ for each additional; **American Forest** magazine with membership.	Publications Department 202-467-5810
American Gas Association (T)	1515 Wilson Boulevard Arlington, VA 22209	Represents the major gas transmission and distribution companies. Brochures, teacher's kits K-12, films. Many free. Free catalog.	Isabelle T. Laucka Manager, Educational Programs 703-841-8400
American Institute of Architects (P)	1735 New York Avenue, N.W. Washington, D.C. 20006	Develops programs in the use of energy in the design and construction of buildings. Free list of publications.	Publications 202-626-7300
American Institute of Chemical Engineers (P)	345 E. 7th Street New York, NY 10017	Informs members of new developments affecting chemical engineering, which is involved in all aspects of energy. Free brochures on gasohol, synthetic fuels, radioactive wastes.	E.L. Florio Public Communications Manager 212-644-7725
American Mining Congress (T)	1920 N Street, N.W. Suite 300 Washington, D.C. 20036	Distributes industry publications on all aspects of mining. Free pamphlets, brochures. Free list of films and filmstrips.	Communications Department 202-861-2800

NAME	ADDRESS	ENERGY ACTIVITY	CONTACT
American Nuclear Society	55 N. Kensington LaGrange Park, IL 60525	Supports nuclear research and development. Provides consumer publications. Books, brochures, charge. Free catalog.	Ed Ronne Manager Public Information Service 312-352-6611.
American Petroleum Institute (T)	2101 L Street, N.W. Washington, D.C. 20037	Works on all areas of the petroleum industry. Publications include technical reports	Janet Dove Staff Advisor Education 202-457-7000
American Planning Association (P)	PO Box 172 Vienna, VA 22180	Monitors patterns of urban growth and development, local economic development and transportation related to energy. Reports, brochures, charge. Free annotated list of community planning research projects.	Yale Shiffman Director Energy Planning 703-827-6238
American Public Health Association (P)	1015 15th Street, N.W. Washington, D.C. 20036	Studies health effects of energy policies.	Publications 202-789-5600
American Public Power Association (T)	2600 Virginia Ave., N.W. Washington, D.C. 20037	Association of publicly-owned electric utility companies. Free list of publications. Materials include brochure of 30 energy definitions, filmstrips, pamphlets.	Publications Department 202-342-7200
American Public Works Association (P)	1301 Pennsylvania Ave., N.W. Suite 401 Washington, D.C. 20004	Holds workshops (two days—$130, non-members) on energy conservation in buildings, water resources, waste facilities, transportation, municipal engineering, equipment services and solid wastes.	Diane Nemeth Staff Associate for Energy and the Environment 202-393-2792
American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE) (P)	1791 Tullie Circle, N.E. Atlanta, GA 30329 Or: PO Box 95766 Atlanta, GA 30347	Provides contacts for information regarding solar heating and energy conservation projects. Reference material. Charge. Publications on conservation and alternate energy sources. Free catalog.	Oliver K. Lewis Technical Information Engineer 404-638-8400
Appalachian Technical Network (C)	c/o Rockcastle Resources Ctr. PO Box 298 Livingston, KY 40445	Provides free list of volunteers for consulting services in assistance with energy projects for rural communities.	Jeff Brenzell Coordinator 606-453-3115
Association of Home Appliance Manufacturers (T)	20 North Wacker Drive Chicago, IL 60606	Offers a number of directories on certified appliances that have been independently tested; useful for comparison shopping. Also offers brochures on safe use of appliances and energy appliance labeling. Charges between 25-50¢.	Public Affairs 312-984-5800
Association of Oilwell Servicing Contractors (T)	6060 North Central Expressway, Suite 462 Dallas, TX 75206	Provides information on oilwell services, industry statistics and safety education. Free list of training programs, slide/cassette programs and publications.	Publications 214-692-0771
Atomic Industrial Forum (T)	7101 Wisconsin Ave. Bethesda. MD 20014	Represents companies, utilities, research labs and other organizations interested in the use and development of atomic energy for peaceful purposes. Serves as a clearinghouse for the industry. Provides consumer publications and educational materials. Free list.	Les Ramsey Education Services Manager 301-654-9260
Automotive Parts and Accessories Association, Inc. (T)	1025 Connecticut Ave., N.W. Washington, D.C. 20036	Distributes information on the repair and service of automobiles for increased efficiency. Booklets "Emissions Control Repair Guide" and "Save Gas, Save Money." Minimum orders 100, charge.	Timothy Tierney Director of Technical Services 202-833-3450
Bio-Energy Council (P)	1625 Eye Street, N.W. Suite 825A Washington, D.C. 20006	Collection and dissemination center on bio-energy information. Directory and proceedings, charge. Free pamphlets.	Paul F. Bente, Jr. Executive Director 202-833-5656

NAME	ADDRESS	ENERGY ACTIVITY	CONTACT
Center for Energy Policy and Research (P)	New York Institute of Technology Old Westbury, NY 11568	Provides energy awareness programs; researches energy projects, particularly in renewable energy resources, disseminates energy information.	Gale T. Stak Deputy Director 516-686-7578
Center for Renewable Resources (C/P)	1001 Connecticut Ave., N.W. Suite 510 Washington, D.C. 20036	Provides educational materials and offers technical assistance to grassroots organizers in renewable energy and conservation projects. Free list of books. Solar energy education packet K-12, charge.	Larry Shirley Director of Networking 202-466-6880
Citizens Energy Project (C)	1110 Sixth Street, N.W. Washington, D.C. 20001	Serves as information clearinghouse for mid-Atlantic states on nuclear power, clean energy alternatives and appropriate technologies. Also works as grass-roots organization and advocate of community-based energy planning. Publications on wind, solar, nuclear energies for sale. Free list.	Ken Bossong Coordinator 202-387-8998
Conservation and Environmental Studies Center, Inc. (P)	120-13 Whitesbog Road PO Box 7596 Browns Mills, NJ 08015	Promotes the use of renewable natural resources through educational programs; curriculum materials K-12, charge. Free list of materials on environment, particularly coastal and pineland communities.	Ellen Reynolds Environmental Consultant 609-893-9151
Consumer Action Now (C)	355 Lexington Avenue, 16th Floor New York, NY 10017	Promotes awareness of energy conservation. Newsletter, film, brochures, charge.	Lola Redford President 212-682-8915
Consumers Union of the U.S., Inc. (C)	256 Washington Street Mt. Vernon, NY 10550	Reprints of energy articles from magazine **Consumer Reports**, charge.	David Berliner Assistant Associate Director 914-664-6400
Edison Electric Institute (T)	1111 19th Street, N.W. Washington, D.C. 20036	Represents U.S. investor-owned electric utility companies. Provides free classroom materials K-12. Free list of publications.	Walter Purdy Manager Education Services 202-828-7400
Energy Action (C)	200 P St., N.W., Suite 310 Washington, D.C. 20036	Nonprofit research and consumer advocacy group on energy policy issues. Free publications list.	Marian Straus Office Manager 202-466-8190
Energyline (P)	Environmental Information Center, Inc. 292 Madison Avenue New York, NY 10017	Clearinghouse for energy information—a data base of journal articles, conference papers, hearings, monographs, etc., free.	Karen Ziegler Director Marketing and Communications 212-949-9482
Environmental Policy Institute (C/P)	317 Pennsylvania Ave., S.E. Washington, D.C. 20003	Research and educational group that deals in matters of energy and water resources; handbooks on radiation health, strip mining laws, charge. Free publications list.	Nancy Davis Office Manager 202-544-2600
Friends of the Earth (C)	124 Spear Street San Francisco, CA 94105	International environmental organization with support services to local groups. Free list of periodicals, reprints, books.	Katie Slichter Circulation Manager 415-495-4770
General Federation of Women's Clubs (C)	1734 N Street, N.W. Washington, D.C. 20036	Local clubs conduct energy education programs on vehicle fuel efficiency, home insulation and alternative energy sources. Free pamphlets, speaker's list, film. If no club locally available, contact headquarters.	Victoria Blayney Program Director 202-347-3168
Home Ventilating Institute (T)	230 N. Michigan Ave. Chicago, IL 60601	Provides information on installation and selection standards for ventilating equipment. Free publications list.	Donn W. Sanford Executive Director 312-359-8160

NAME	ADDRESS	ENERGY ACTIVITY	CONTACT
Industrial Gas Cleaning Institute (T)	700 N. Fairfax Street Suite 304 Alexandria, VA 22314	National association of manufacturers of industrial air pollution control equipment. Free list of technical pamphlets.	Publications 703-836-0480
International Biomass Institute (C)	1000 Vermont Ave., N.W. Suite 209 Washington, D.C. 20005	Educational activities in alternative energy systems; consumer information includes newsletter, brochure on biomass. Free	Elizabeth Nielsen Secretary-Treasurer 202-783-1133
League of Women Voters (C)	1730 M Street, N.W. Washington, D.C. 20036	A citizen education and research organization. Free catalog includes energy publications and fact sheets. Charge for publications; quantity discounts available.	Isabelle Weber Director Energy Project 202-296-1770
National Center for Appropriate Technology (C)	PO Box 3838 Butte, Montana 59701	Seeks to develop and apply technologies appropriate to the energy-related needs of low-income people and communities. Free publications list.	Information Division 406-494-4572
National Coal Association (T)	1130 17th Street, N.W. Washington, D.C. 20036	Supports the development and use of bituminous coal; promotes legislation favorable to the industry and the research of mining techniques, air pollution control, and coal combustion. Free teacher's packet K-12. Coal kit, $1.	Betsy Kraft Director Education Services 202-463-2625
National Electric Contractors Association (T)	7315 Wisconsin Avenue West Mall, 13th Floor Bethesda, MD 20014	Coordinates an energy conservation marketing program for electrical contractors; book, "Total Energy Management, A Practical Handbook for Energy Conservation." One copy, $2.50.	Robert White 301-657-3110
National Energy Foundation (T)	366 Madison Avenue Suite 705 New York, NY 10017	Nonprofit association with general education information. Teacher's packet for 7-12 on all forms of energy, free. Free list of 100 best books on energy selected by educators.	Susan Dashnow Director of Programs and Projects 212-697-2920
National Environmental Balancing Bureau (T)	8224 Old Courthouse Road Vienna, VA 22180	Certifies firms in specialty programs for testing and adjusting heating and ventilating systems in buildings. Technical and educational manuals, charge.	W.D. Bevirt Secretary 703-790-9890
National Independent Coal Operators Association (T)	1514 Front Street PO Box 354 Richlands, VA 24641	Works on state and federal legislation affecting the coal industry. Distributes energy information to schools.	Local chapters
National Petroleum Refiners Association (T)	Suite 1000 1899 L Street, N.W. Washington, D.C. 20036	Technical papers on fuels, lubricants, government energy issues. $2. Free list.	Patty Zvearc Publications Director 202-457-0480
National Science Teachers Association (P)	1742 Connecticut Ave., N.W. Washington, D.C. 20009	Develops instructional materials on energy for teachers and classrooms and conducts workshops on energy education. Free list. Free newsletter.	Dr. John Fowler Director Special Projects 202-265-4150
National Urban League (C)	500 E. 62nd Street New York, NY 10021	Concerned with all aspects of the energy crisis affecting low-income consumers.	James Fortune Director Cooperative Energy Education 212-644-6500
Northeast Appropriate Technology Network (C)	PO Box 548 Greenfield, MA 01302	Serves as a clearinghouse for information and referral agency for community appropriate technology funds.	Patricia Greene Editorial Coordinator 413-774-2306

NAME	ADDRESS	ENERGY ACTIVITY	CONTACT
Nuclear Information and Resources Service (C)	1536 16th Street, N.W. Washington, D.C. 20036	Nonprofit national clearinghouse for people concerned about nuclear power and interested in promoting renewable energy. Abbreviated list of most popular publications and complete list of 150 publications (includes technical reports and government documents) free. Set of 8 fact sheets, film resource guide, 8 pages, charge. Referral service for speakers around the country.	Information Office 202-483-0045
Petroleum Marketing Education Foundation (T)	PO Box 11187 Columbia, SC 29211	Provides educational material for the petroleum industry. Free catalog of films, brochures, manuals.	Publications 803-252-5646
Rain Umbrella, Inc. (P)	2270 N.W. Irving Portland, OR 92710	Maintains resource library and referral service; answers consumers' questions on energy projects, especially appropriate technology.	Carlotta Collette Co-editor 503-227-5110
Society of Petroleum Engineers of AIME (P)	6200 N. Central Expressway Dallas, TX 75206	Distributes technical information pertaining to production, drilling, natural gas and related energy sources.	Larry Lauck Public Relations Manager 214-361-6601
Solar Energy Industries Association (T)	1101 Connecticut Ave., N.W. Suite 800 Washington, D.C. 20036	Serves as a focal point for those engaged in the installation, distribution, manufacture and design of solar energy equipment. Installer's curricula. Charge. Index to manufacturers of residential solar equipment, $10.	Peter Colaianni Director of Administration 202-293-2981
Southern Unity Network/ Renewable Energy Projects (C)	3110 Maple Drive Suite 412 Atlanta, GA 30305	Promotes appropriate technology in southeastern states by serving as a clearinghouse on information and referral agency for community appropriate technology funding.	Ron Mitchell Director 404-261-1764

CURRICULUM MATERIALS

While many teachers are interested in promoting energy awareness among their students or integrating specific energy-related techniques into their existing curricula, they are often unsure of where to begin. This section offers a sampling of instructional materials and activities that may serve as a good starting point.

A wide variety of materials are offered here, ranging from those providing general energy awareness to particular course offerings in more narrowly defined areas. Because many of the items may be applied in more than one discipline, or cover several areas of energy, the materials are listed in alphabetical order as opposed to occupational area or type of energy.

In putting together this section, the American Vocational Association attempted to gather as much information as possible on each item; however, some items are more complete than others. The general information we tried to obtain is as follows:

Title of Curriculum Material
Author
Grade Level
Area (e.g., general awareness, vocational education, industrial arts)
Year No. of Pages Price
Description
Supplier

Much of the information in the section was obtained from the following sources: the *Energy Education Resource Guide*, published by the Maryland State Department of Education, the special energy bibliographies of the Eastern Central Curriculum Management Center (ECCMC) and the Western Curriculum Coordination Center (WCCC) and from information gathered by the Midwest Energy Education Consortium.

Please note, in cases where materials are available from the two curriculum centers mentioned above, the listing will indicate only "Also available from ECCMC" or from WCCC (or both centers), as the case may be. The complete addresses are as follows:

East Central Curriculum Management Center (ECCMC)
Dept. of Adult, Vocational and Technical Education
Illinois State Board of Education
100 North First Street
Springfield, IL 62777
Telephone: 217-782-0759

Western Curriculum Coordination Center (WCCC)
1776 University Avenue
Wist Hall 216
Honolulu, HI 96822
808-948-7834

AGRICULTURE, ENERGY AND SOCIETY

10-12

Agricultural Education, Social Studies,
Home Economics, Science

1978 110 pgs. Free

This unit consists of 11 activities which focus on the energy component of food production. Individual activities examine agricultural careers, energy efficiency of producing different crops, the use of fertilizers in agriculture and alternatives to conventional farming techniques. Student materials provide tables and graphs depicting energy consumption in food production, energy efficiency for common crops and the effect of fertilizers on grain yields.

DOE Technical Information Center
P.O. Box 62
Oak Ridge, TN 37830
Also available on loan from ECCMC.

AGRICULTURAL ENERGY CURRICULUM DEVELOPMENT PROJECT. RESEARCH AND DEVELOPMENT PROJECT IN CAREER EDUCATION, VOCATIONAL, FINAL PROJECT.

Postsecondary

Agriculture

1979

A project was conducted to develop energy instructional units which would fit into each year of a three-year farm business management curriculum. Four curriculum units which focus on fertilizer management in crop production were developed. The first was designed to develop farmers' awareness of energy as a vital resource to their business and the establishment of farm and family goals. The second unit was designed to describe the amount of energy needed to produce fertilizer for the farming operation. The third and fourth units were designed to describe energy consumption and returns from the various cropping programs and methods of planning a cropping program which encourage energy conservation. (A copy of the four units is contained in the appendices. Each unit contains student objectives and suggested teaching strategies.)

Minnesota State Department of Education
Division of Vocational and Technical Education
Capitol Square Building
St. Paul, MN 55101

Microfiche copy available from:
ERIC Document Reproduction Service
P.O. Box 190
Arlington, VA 22210
(ERIC Order No. ED 174 780)

ALCOHOL FUELS: USE, PRINCIPLE, ECONOMICS

Interdisciplinary

1981 Single copy free

These materials may be used for short-term workshops, a full-term course or as segments in standard chemistry, physics and other related courses. Includes student's text, teacher's guide and a slide/sound supplement package.

Document Distribution Service
Solar Energy Research Institute
1617 Cole Blvd.
Golden, CO 80401
303-231-1155

ALTERNATIVE NATURAL ENERGY SOURCES IN BUILDING DESIGN

Albert J. Davis and Robert P. Schubert

Construction Trades

1977 252 pgs. $6.95

This book describes alternative solutions and applications for each problem and over 200 diagrams, tables and formulas are supplied. Summarizes relation of energy to the built environment, regional and site adaption, energy conservation, natural cooling and ventilation, water power, wind power, solar energy, organic fuels and integrated systems.

Van Nostrand Reinhold Company
A Division of Litton Educational Publishing, Inc.
450 West 33rd Street
New York, NY 10001

Also available on loan from ECCMC.

APPLICATION OF SOLAR HEATED WATER TO GREENHOUSES

R.F. Lucas and C.D. Baird

1976 30 pgs.

This bulletin explains how a solar heated water system works and how to figure your greenhouse heating needs and your equipment needs.

Institute of Food and Agricultural Sciences
University of Florida
Gainesville, FL 32601

Also available on loan from ECCMC.

AWARD WINNING ENERGY ACTIVITIES FOR ELEMENTARY AND HIGH SCHOOL TEACHERS

Elementary and Secondary

1978 38 pgs. Free

Contains brief descriptions of prize winning entries in the National Science Teachers Association Teacher Participation Contest conducted in 1976. The contest sought ideas that would fit easily into standard (science and non-science) courses of study at various grade levels to further student understanding of important energy issues.

DOE Technical Information Center
P.O. Box 62
Oak Ridge, TN 37830

Also available on loan from ECCMC and WCCC.

[illegible] BASIC TEACHING UNITS ON ENERGY

9-12

Industrial Arts, Science, Social Studies

1978 400 pgs. $10.00

These 14 units were developed by secondary teachers for inclusion in existing courses. Length of the units varies from five to 15 days. Each unit, although different in content, has the same basic organization structure: an abstract, the recommended level, the time required, the major teaching strategies, essential advance preparation, the goals and objectives, the daily lessons, recommended evaluation suggestions, a bibliography, and a supplement, if needed. Originals for duplication are provided. Keys to daily or unit evaluations are also included. Titles for the individual units are: Fueling Around, Physical Laws of Electrical Power Generation; Energy Conservation in the Home; Oil Fuel of the Past; Yesterday, Today, and Tomorrow; Solar Energy in the Home; Gasohol; Conservation with the "Double Nickel" and Carpooling; Economics and Energy; Future Energy Technologies; No Energy; Energy Uses in Nebraska Agriculture; Am I the Way; and Petroleum in An Age of Scarcity.

Nebraska Energy Office
Box 95085
Lincoln, NE 68509

COMPUTATIONS ABOUT THE SOURCES AND CONSERVATION OF ENERGY

9-10

Mathematics

1976 74 pgs.

Activities in this unit present a mathematical examination of energy concepts designed to give students a practical understanding of energy use and conservation. Word problems are grouped into three units: Energy for Moving Things, which examines energy use in transportation and recreation; Energy for Heat and Light, which looks at energy use and conservation in the home; and Our Energy Resources, which explores the many sources of energy. A comprehensive glossary, an answer key, table of conservation factors, and brief bibliography are included. This unit is an excellent starting place for teachers interested in providing students with insights into energy conservation from a mathematics perspective.

Florida State Department of Education
Office of Environmental Education
Knott Building
Tallahassee, FL 32304

THE CONCEPTUAL BASE FOR INDUSTRIAL EDUCATION: A COOPERATIVE CURRICULUM EFFORT IN THE AREA OF POWER AND ENERGY

Secondary

Industrial Education

1977 460 pgs.

Competency-based instructional materials developed by the Kansas Department of Energy.

Available on loan from WCCC.

DO-IT-YOURSELF ENERGY SAVINGS

Barbara S. Townley

Consumer Education

1979 176 pgs., plus slides and cassette tape

A course to aid the consumer in determining how to wisely improve the energy efficiency of his or her home by installing weatherstripping, caulking, vapor barriers and ventilation. The curriculum contains the slides, script, transparency masters, handouts, bibliographies and resource book.

Slide Carousels:

Weatherstripping	76 slides
Caulking	77 slides
Vapor Barriers	46 slides
Ventilation	56 slides
How to Choose a Contractor	47 slides
Energy Economics	117 slides

Cassette tape:

Energy Economics—15-minute P.R. presentation which

DO IT YOURSELF ENERGY SAVINGS (continued)

gives the consumer an idea of what is being offered by the course.

Book: In the Bank . . . Or Up the Chimney?

For loan availability, contact:
Sherman D. Ansell, Project Director
Energy Curriculum Development for VTAE
Wisconsin Board of Vocational, Technical and Adult Education
4802 Sheyboygan Avenue, 7th Floor
Madison, WI 53702
608-266-3316

Also available on loan from ECCMC.

ELECTRIC ENERGY

10-12

Vocational Education, Industrial Arts, Sciences

1976 48 p. Text $2.95
155 Slides $100.00

This publication is supplemented by an audiovisual kit containing 35 mm slides and tape cassette. The unit is designed to provide an introductory level understanding of electrical energy—how it is used, why it is important, how it works, where it comes from and how it is transported. Excellent graphs, charts, schematic diagrams are contained in the text and slides. Although the unit does not contain an evaluative tool or related student activities, it can be used as a student source for individual or group study.

American Association for Vocation Instructional Materials (AAVIM)
Engineering Center
Athens, GA 30602

Also available on loan from WCCC and ECCMC.

ENERGY ACTIVITIES FOR INDUSTRIAL EDUCATION

7-12

Industrial Arts

1977 42 pgs. $5.00

Each of the 21 activities developed by teachers for industrial education programs identifies procedures and contains illustrated diagrams of equipment and materials required. Students are actively involved in "hands-on" experiments. Energy topics emphasized include construction of hydroelectric and wind generators, insulation efficiency tests, solar collection and storage and automotive efficiency.

Minnesota Instructional Materials Center
3554 White Bear Avenue
White Bear Lake, MN 55110

ENERGY AND EDUCATION: TEACHING ALTERNATIVES

Frederick E. Posthuma

K-12

Multidisciplinary

1978 160 pgs. $5.95

This book is an excellent starting point for initiating an energy education program. In 15 chapters it provides a rationale and guidelines for energy programs, suggestions on developing energy teaching centers, background readings on energy issues, curriculum lesson and unit plans, and a resource list. "Which Source of Energy Is Best for Heating My Community" and "Energy and Its Natural Sources" are two curriculum units included. Topics covered in the background readings include teaching about nuclear power controversy, six ways to reduce energy consumption, and leisure and the energy crisis.

National Education Association
1201 Sixteenth Street, N.W.
Washington, DC 20036

ENERGY AND YOUR FUTURE

Robert E. King

9-10

Vocational Education, Science

1978 40 pgs. $3.00

This booklet is a collection of nine experiments designed as a two-week mini-unit. Topics include energy and its uses, energy consumption, changing energy forms, making electricity and the economics of energy production. Activities contain teacher background information, procedures and discussion questions.

Wisconsin Vocational Studies Center
1025 West Johnson Street
University of Wisconsin - Madison
Madison, WI 53706

ENERGY CONSERVATION AND AWARENESS: YOU MAKE THE DIFFERENCE

Secondary

Vocational Education

1981

The American Institute for Research, under a grant from the Department of Education, has developed 22 occupation-specific modules for secondary vocational education. Sample titles include *Energy Efficiency for Tomorrow's Auto Mechanic, Energy Efficiency for Tomorrow's Food Service Worker, Energy Efficiency for Tomorrow's Machinist,* etc. In addition to the occupation-specific, two general introductory modules, as well as a learning activity package, complete the set. While the modules were not yet available as this *Energy Awareness Guide* was going to press, they should be available by January, 1982. For further information, contact:

Rachel L. Rassen
American Institute for Research
PO Box 1113
1791 Arastradero Road
Palo Alto, CA 94302
415-493-3550

ENERGY CONSERVATION-AND-USE TECHNICIAN (ECUT)

Postsecondary

1979 $25.00 Guide

1981 $2.50 Each module

The ECUT program materials include 18 courses with 125 modules, curriculum guide and planning document. Courses focus on energy technology, economics, production systems, audits, conservation, electronic devices, fluid power systems, electrical power and illuminating systems, heating/ventilation/air conditioning, microcomputers, codes and regulations, instrumentation and controls, and other topics. The program is designed for two-year postsecondary institutions. It aims at training energy generalists. Not all materials are complete at this time.

Contact: Michael E. Blackmon,
Associate Project Director
Center for Occupational Research and Development (CORD)
4800 Lakewood Drive
Waco, TX 76710
817-772-8972

ENERGY CONSERVATION FOR THE HOME: OR, HOW TO LOWER YOUR UTILITY BILL

1976 Book: $2.50 Videotape: $360.00 (Rental)
$810.00 (Sale)

Senior High and Adult

Home Economics, General Conservation

This is a special short course at the lay level for the homeowner, builder, building material supplier and real estate agent. This series of lectures is intended to provide the homeowner with the information needed to substantially reduce home energy consumption. The lectures start with an introduction on heat, energy and power. Topics covered in the lectures include fundamental definitions and units (What's a BTU?); tips on simple ways to reduce utility bills without major renovation; operating efficiencies of different types of heating and cooling systems (EER ratings); insulating properties of typical building materials (What's an R or a U value?); benefits and losses of shading devices and reflective coatings; and how to estimate heat gains and losses from various elements of a house. While the lectures are tailored more for warm climates, where air conditioning accounts for a significant part of home energy consumption, comments are included which make the lectures quite useful for cold climates as well.

Book:

University of Arizona
Engineering Experimental Station
College of Engineering
Tucson, AZ 85721

Videotape:

Genesys Systems, Inc.
1121 East Meadow Drive
Palo Alto, CA 94303

ENERGY CONSERVATION IN CONSTRUCTION TRADES

Secondary and Postsecondary

Vocational Education: Construction Trades

1978

Section I provides an instructional module (developed by the Wisconsin Vocational Studies Center) on solar energy; the module is organized into seven units: Using Solar Energy, Locating the Sun, Solar Energy Systems, Collection, Storage, Distribution, and Representative Solar Energy Systems for Heating Homes. Each unit generally includes objectives, information sheets, a student assignment sheet, and a unit test with answer key. Section II provides bibliographies related to employment impact of solar energy, marketing poten-

ENERGY CONSERVATION IN CONSTRUCTION TRADE (continued)

tial on the growth of solar energy and solar energy system design.

ERIC Document Reproduction Service
P.O. Box 190
Arlington, VA 22210
(ERIC No. 174796)

Also available on loan from ECCMC.

ENERGY CONSERVATION IN THE HOME: AN ENERGY EDUCATION/CONSERVATION CURRICULUM GUIDE FOR HOME ECONOMICS TEACHERS

Lil Clinard

8-12

Home Economics

1977 319 pgs. Single copy free

This unit provides a variety of resources which can be used by both teachers and students in home economics classes. Background readings clarify the relationship between energy use and conservation in housing construction, environmental control, flood, clothing, personal care and entertainment. Twenty-six activities are included; each is referenced to the resource readings.

DOE Technical Information Center
P.O. Box 62
Oak Ridge, TN 37830

Also available on loan from ECCMC.

ENERGY CONSERVATION INTERDISCIPLINARY PROGRAM

Martha A. Hawn

Secondary

Vocational Education

1980 49 learning activity packets

These learning activity packets (LAPs) all include a rationale, primary and secondary ideas and performance objectives. The titles are:

1. Air Infiltration
2. Attic Venting
3. How Much Energy is Given Off by the Sun—Basic Solar Theory
4. Building a Smarter Thermostat
5. Building a Flat-Plate Solar Collector
6. Building a Liquid Medium Concentrating-Type Solar Heating System
7. Coal. . . An Energy Alternative
8. Conserving Energy in Home Planning
9. Determining the Efficiency of a Solar Collector
10. Efficient Home or Apartment Cooling to Conserve Energy
11. A-B-C-D Energy Conversions
12. Energy and Its Sources
13. Career Ladder Energy Conservation
14. Energy Efficient Cars and Transportation
15. Our Energy Future
16. Energy Use. . . We vs. They
17. Factors Which Determine the Efficiency of an Oil Fired Boiler
18. Heat Loss in Homes
19. Heat Pumps—What Are They?—How Do They Work?
20. House Orientation and Window Location
21. How Insulation Works
22. How Sunlight Can Be Changed to Heat
23. How to Conserve Energy In and Around the Home
24. How to Find Out If We Are Energy Pigs?
25. How to Save Trillions of (BTU's)
26. How to Store Heat in a Passive Solar Home
27. Installing Insulation and Vapor Barriers
28. Measuring Solar Energy
29. Multi-Fuel Heating
30. Nuclear Energy in New England
31. OPEC and Middle East Oil
32. OPEC: What, How and Why
33. Pre-Fabricated Chimneys
34. Roof Venting
35. Seasonal Changes of the Sun
36. Solar Parts List
37. Solar Sewage Treatment
38. Storm Windows and Thermopane
39. Super Plants
40. Trash Power
41. Types of Insulation and Vapor Barriers
42. Use of Vegetation Natural Heating and Cooling
43. Weatherization of a Home to Conserve Energy
44. Weatherstripping and Caulking
45. Wind and Water Power
46. Wood and the Woodburning Stove—An Energy Saving Alternative
47. Wood Burning
48. 55 MPH Yes or No on Energy Conservation
49. Building a Solar Oven
50. Includes LAP Titles and Media Recommendations

Greater Lowell Regional Vocational Technical School District
Pawtucket Blvd.
Tynsboro, MA 01879

Also available on loan from ECCMC.

ENERGY FOR THE FUTURE: EDUCATION, CONSERVATION, TRAINING (EFFECT)

Adult

1979 Undetermined price

The four-unit curriculum guide is the result of a three-year project begun in October 1977. It depicts an eight-month training program designed to prepare students to work as energy extension agents, a new occupational role. It is shaped for adults with no previous technical training.

Indiana University at South Bend
1700 Mishawaka Avenue
South Bend, IN 46615
Contact: Gail Dowth, Continuing Education

ENERGY IN THE GLOBAL MARKETPLACE

9, 10, 11

Social Studies

1978 58 pgs. Free

The six activities in this unit examine the global economics of the petroleum industry. Maps, tables, and graphs provide data on global supply and consumption, the relationship between oil and industrial development and the international balance of trade. A role-play simulation game investigates the process by which energy prices are determined. When used in its entirety, the activities will take two weeks to complete.

DOE Technical Information Center
P.O. Box 62
Oak Ridge, TN 37830

Also available on loan from ECCMC.

ENERGY TECHNICIAN TRAINING PROGRAM AND CERTIFICATES IN ENERGY TECHNOLOGY PROGRAM

Postsecondary

1979 Cost of photocopying plus postage

The programs were shaped to meet local manpower needs. They use as a basic text Bergen County Community Action Program: Field Design and Training Manual.

Contact: James Torpey
Bergen County College
Community Services
Paramus, NJ
201-447-1500, Ext. 231

FUNDAMENTALS OF SOLAR HEATING: CORRESPONDENCE COURSE

Sheet Metal and Air Conditioning Contractors National Association

Adult

1978 Text: $12
Guide: $9

Correspondence course for air-conditioning workers to learn how to apply solar technology. Textbook and study guide.

National Technical Information Service (NTIS)
U.S. Dept. of Commerce
5285 Port Royal Road
Springfield, VA 22161

Also available on loan from ECCMC.

HOUSEHOLD ENERGY

8-10

Science

1976 Teacher's edition—90 pgs. $3.95
Student edition—75 pgs. $2.50

Household Energy is designed for use as a mini-unit or as individual lessons for inclusion in existing science courses. Eighteen activities are grouped as core, advanced and excursion according to level of difficulty. Activities focus on various aspects of energy use in the home including energy costs and using solar energy at home. The teacher's edition includes a program overview, listing of materials and equipment required for each of the activities, background information, evaluation suggestions and references.

Ginn and Company
P.O. Box 573
Lexington, MA 02173

THE HOUSEHOLD ENERGY GAME

Thomas W. Smith, John Jenkins

9-12

Home Economics, Consumer Economics, Adult Education

1974 20 pgs. $3.00

The Household Energy Game examines the current energy consumption patterns of individuals and explores ways to conserve energy. Energy spending for transportation, home heating and cooling, and

THE HOUSEHOLD ENERGY GAME (continued)

appliances are identified and calculated, producing a household energy budget. Energy savings methods in each of the categories are described and estimates of potential savings calculated. Presented with a plan of action for home energy savings, participants are encouraged to implement an individual program which will save energy and money.

The University of Wisconsin
Sea Grant Communications Office
1800 University Avenue
Madison, WI 53706

INDUSTRIAL ARTS MANUAL TO THE CONSTRUCTION OF MINIATURIZED ALTERNATIVE SOURCE EQUIPMENT

Thomas T. Reisdorph

Secondary

Industrial Arts

1979 107 pgs.

Study Units.

Available on loan from WCCC.

INTERDISCIPLINARY STUDENT/TEACHER MATERIALS IN ENERGY, THE ENVIRONMENT AND THE ECONOMY

National Science Teachers Association

Secondary

Interdisciplinary

1979 288 pgs.

Competency-based materials. Teacher's guide and student unit.

Available on loan from WCCC.

INTRODUCTION TO ENERGY

Fred Posthuma

9-10

Vocational Education, Industrial Arts

1978 114 pgs. $6.50

These 23 activities are designed as an introduction to energy, its uses and conservation. Activities are presented in outline form and grouped by behavioral objectives. Activity masters are provided for reproduction of student readings and worksheets. Many of these resources are adapted from Department of Energy materials. Topics include present resources, energy conservation and alternative energy sources.

Wisconsin Vocational Studies Center
1025 West Johnson Street
University of Wisconsin-Madison
Madison, WI 53706

Also available on loan from ECCMC.

THE IOWA INDUSTRIAL ARTS HANDBOOK FOR INTRODUCTORY LEVEL ENERGY AND POWER.

Rex Pershing and Willis Norton

Junior High

1978 30 learning activity packets

This handbook includes 30 individualized learning activity packets developed for use in an introductory energy and power class.

State of Iowa
Department of Public Instruction
Grimes State Office Building
Des Moines, IA 50319

Also available on loan from ECCMC.

PROJECT RETROTECH: TEACHER'S KIT FOR COURSE ON HOME WINTERIZATION

1975 165 pgs. $6.75

Project RETROTECH is a complete course in home winterization. It includes all necessary charts for use as transparencies and specifies the necessary materials that should be brought to the classroom for demonstration purposes. The kit contains the Teacher's Guide to Home Winterization, the Home Winterization Job Book, the Home Winterization Manual and Home Winterization charts.

National Technical Information Services (NTIS)
U.S. Dept. of Commerce
5285 Port Royal Road
Springfield, VA 22161

(Document No. PB-250 148)

PROVIDING FOR ENERGY EFFICIENCY IN HOMES AND SMALL BUILDINGS

Senior High and Adult

1980	3 volumes	Single copy free (excluding media components)

Part I—an 88-page illustrated text explaining the energy dilemma, how energy is used in buildings and suggestions for conserving energy in buildings.

Part II—a 66-page manual containing a simplified procedure for computing the amount of energy lost or gained in a building.

Part III—a 114-page text which gives detailed instructions on how to apply energy-saving techniques in building structures.

The 71-page *Student Workbook* includes questions related to the material covered in Parts I through III. Also, laboratory exercises are suggested.

The 53-page *Teacher Guide* gives answers to the questions in the *Student Workbook* and discusses the tools and materials needed for energy conservation techniques and the teaching strategies for meeting the classroom/laboratory objectives.

The materials are designed for use as a discrete course, for integration with construction trade courses or for self-paced instruction. Parts I and III are accompanied by supplemental media programs, available from American Association for Vocational Materials (AAVIM), Engineering Center—Room 120, Athens, Ga. 30602. Part I media program is $85; Part III is $98.

DOE Technical Information Center
P.O. Box 62
Oak Ridge, TN 37830

SOLAR ENERGY LABORATORY MANUAL

W. Douglas Davis

11-12

Science

1979	Teacher's guide	45 pgs.	$5.95
	Lab manual	95 pgs.	$5.95

This unit consists of 17 laboratory and outdoor experiments which teach fundamentals about the collection, storage and use of solar energy. Topics include suntracking, solar radiation, trapping the sun's energy, heat transfer, passive solar systems, and flat plate collectors. The activities contain objectives, a listing of equipment required, procedures, and exercises for follow-up. The teacher's guide provides an answer key and extensive tables for determining radiation values.

Crystal Productions
107 Pacific Avenue
Aspen, CO 81611

SOLAR ENERGY PROJECT TEACHER'S GUIDE

Teacher's Manual

Multidisciplinary

1979 36 pgs. $2.20

The Teacher's Guide provides an overview of the eight components that comprise the Solar Energy Project. A brief description of the 43 individual activities is presented in the order these are contained in the five subject area packets. A content-grade level matrix and topical development outline present alternative ways for incorporating the activities into existing curriculum programs. Activities within the multidisciplinary extensions section suggest ways to apply the concepts, methods and materials to fine arts, agriculture, health, home economics, industrial arts, language arts, mathematics, and social studies courses. A hardware section provides diagrams and descriptions for construction of solar instruments including a still, thermometer, hot dog cooker, solarmeter and solar clinometer. A references and resources section identifies books, magazine articles and organizations which provide information on solar energy.

U.S. Government Printing Office
Washington, DC 20402

UNDERSTANDING ELECTRICITY AND ELECTRICAL TERMS

9-12

Vocational Education, Industrial Arts, Sciences

1975	48 p. Text	$3.95
	88 Slides	$44.00
	90 Masters	$7.95

This is a useful learning tool for the average homeowner as well as high school students. The unit consists of a well illustrated booklet, a set of slides and originals for transparencies or student handouts. There are excellent illustrations throughout. The reading describes energy and how it works, defines common electrical terms and gives their relationships, and examines the use and conservation of electrical energy in the home. Activities and evaluative material are not included.

American Association for Vocational Instructional Materials (AAVIM)
Engineering Center
Athens, GA 30602

UNDERSTANDING SOLAR ENERGY SYSTEMS

Laurie Keaton and Everett Edington, revised and edited by Merle Stephy

11-12 and Postsecondary

Vocational Education: Building Trades

1978 151 pgs. $7.00

This module was designed as a general introduction to solar energy, with specific comprehensive units focusing on residential applications and use of solar energy. A teacher's guide includes objectives, student readings, assignments and worksheets, test questions and keys, references and a brief glossary. A well-illustrated set of originals is provided for transparencies or student handouts. Topics covered include using solar energy; solar energy systems; collection, storage and distribution; and representative solar energy systems for heating homes.

Wisconsin Vocational Studies Center
964 Educational Sciences Building
1025 West Johnson Street
University of Wisconsin-Madison
Madison, WI 53706

VOCATIONAL REGION 10 SOLAR GREENHOUSES: A RESOURCE BOOKLET FOR VOCATIONAL EDUCATORS

Jonathan Gorham

Secondary

Vocational Education

1978 38 pgs.

This curriculum booklet makes a variety of recommendations intended to help other vocational schools become involved in alternate specific design refinements of the Region 10 Solar Greenhouse, which can enable other schools to build improved structures.

Maine Audubon Society
118 Old Route One
Falmouth, ME 04105

Also available on loan from ECCMC.

FILMS

Films and other audiovisuals are a great way to grab the attention of students and to offer variety in teaching. Subjects covered in the following 32 films run the gamut from saving on energy expenses in the home to using wind for pumping irrigation water to how to build your own solar greenhouse. There are films offering overviews of current energy developments and others on specific types of energy, such as electricity, gas, coal and solar. Many of the films are available on loan or for free preview.

Write or call directly to the supplier listed following the film's description for information on availability and prices. Expect to pay insured, return postage in most cases, even for those films that are available on loan. Prices for rental or purchase, when known, are indicated immediately after the film's title and year.

The films and videotapes listed in this section come from a variety of sources, including government, universities, trade associations, consumer groups and film distributors. Not included are the many films available free of charge from oil companies. These were omitted only because the American Vocational Association did not have a complete list of all the offerings, but teachers may wish to write directly to the public affairs departments of the major oil companies for further information. In addition, local utility companies are another good source of free films. Check also in the bibliographies and directories section of this guide for film catalogs.

Inclusion of films in this section does not indicate an endorsement of the film's message or of the sponsoring organization.

AN AMERICAN ASSET.

1974

Free loan.

This film discusses how coal is formed; how it is mined, processed, and transported; and the safety precautions taken during mining. Surface mining and land reclamation steps being taken are also looked at. 27 minutes/color.

Available on loan from the East Central Curriculum Management Center (ECCMC), Dept. of Adult, Vocational & Technical Education, Illinois State Board of Education, 100 North First St., Springfield, IL 62777. 217-782-0759. Order two months in advance of showing.

BUILD YOUR OWN GREENHOUSE—SOLAR STYLE.

1978

Rental $55/Purchase $315

16mm, color/sound, 21 minutes. This film is intended for use in a workshop of volunteers—groups or homeowners—interested in using the warmth of the sun for year-round gardening, water conservation and heating adjoining buildings. It is directed toward an audience that wishes to inform and interest the public in this alternative energy source. The technology on how to design and cost-effectively build a solar project is demonstrated. The film comes with two books, "The Food and Heat Producing Solar Greenhouse" and "An Attached Solar Greenhouse." Those who purchase the film can also buy the "Education Guide" for $3.00, which suggests small projects for upper elementary to college-age students, or the "Workshop Construction Guide," also $3.00, which shows how to organize workshops and operate the solar greenhouse.

Danamar Film Productions, 275 Kilby, Los Alamos, NM 87544. 515-672-9766.

CHALLENGE OF THE FUTURE.

1975

Free loan or purchase for $124.50.

16mm, color, 29 minutes. Provides a fast-paced overview of current energy developments and goals for the future. Discusses breeder and fusion, Alaskan pipeline, synthetic fuels, geothermal, wind, solar, tidal, better uses of coal and energy conservation. A well-balanced film that puts current and potential sources into perspective. Senior high and adult level.

For loan from DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830. For purchase from Sales Branch, National Audiovisual Center, General Services Administration, Washington, DC 20409.

ELECTRIC ENERGY.

1976

155 35mm color slides, 15-minute cassette. A fundamental study of what electricity is and how it is produced. It includes discussions of such sources as coal, oil, gas, nuclear, geothermal and potential future methods. The slides include a number of diagrams and other graphics that might prove a useful resource for students in junior high and above. The kit is accompanied by an excellent study guide, which is also available as a separate item. Teachers should screen the set before purchase.

American Association for Vocational Instructional Materials, Engineering Center, Athens, GA 30602.

ELECTRICITY—THE WAY IT WORKS.

1976

Preview or purchase for $275.

Here is a basic look at details of electricity, what it is, how it is produced and transmitted and what America's future energy needs and resources will be. The film, produced by Screen News Digest in cooperation with the Edison Electric Institute, considers fossil fuels, hydroelectric plants and nuclear power as the basic sources of electricity today. It also looks at such alternative sources as sun, wind and tides. A discussion guide for teachers accompanies the film, and includes a glossary of common terms, suggested questions about the film and some sources for further reference and research.

Screen News Digest, 235 East 45th Street, New York, NY 10017.

ENERGY CONSERVATION IN INDUSTRIAL PLANTS.

1980

Rental $75 each/Purchase $300 each.

A videotape course, produced by Association for Media-Based Continuing Education for Engineers, Inc. (AMCEE). Color ¾-inch standard videotape, 40 minutes each. Ten videotapes and print instructional materials for managers, maintenance supervisors and energy coordinators on industrial energy cost reduction through proper HVAC and systems operation.

Dept. A, AMCEE-Georgia Institute of Technology, Atlanta, GA 30322.

ENERGY CONSERVATION IN RESIDENTIAL CONSTRUCTION.

Rental.

Describes and illustrates the energy efficient re[illegible]e.

Center for Energy Policy and Research, New York Institute of Technology, Old Westbury, NY 11568. 516-686-7578.

ENERGY SOURCES. . . A MATTER OF POLICY.

Rental $11. Study guide available at $2.50.

16mm sound/color film, 29 minutes. An interesting and informative overview of major energy choices available to U.S. (solar, nuclear, oil shale, coal, geothermal, tar, sands and wind).

University of Colorado, Educational Media Center, Stadium Building 353, Boulder, CO 80309.

ENERGY: THE AMERICAN EXPERIENCE.

1975

Free loan or purchase for $129.25.

16mm, color, 28 minutes. A general audience film that recounts American history from a somewhat unusual standpoint: the inventions and technologies that have helped our nation to grow and the importance of the new energy sources that will help us continue to grow. Emphasis is on the need to preserve our way of life as we now know it and hope to maintain it for future generations, rather than on growth for its own sake.

For loan from DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830. For purchase from Sales Branch, National Audiovisual Center, General Services Administration, Washington, DC 20409.

EXPLORING ELECTRIC ENERGY.

1977

Preview or purchase $175. Teacher's guide included.

16mm, color, 18 minutes. This is Edison Electric Institute's revision of United Illuminating Company's motion picture tour through a modern electric generating station. With the use of footage taken over years of planning and construction, the film presents a thorough picture of the development and operation of such a plant. In addition, simple scientific demonstrations help explain the fundamentals of electricity. Good for junior high level and up. A teacher's guide is included, with glossary of terms, sample discussion questions and a suggested list of future projects.

Kenvin Donovan Films, 44 Treat Road, Box 309, Glastonbury, CT 06033.

FORGOTTEN FUNDAMENTALS OF THE ENERGY CRISIS.

Rental.

Color videotape based on paper of Professor Albert A. Bartlett. 54 minutes.

Durwood Space Educational Media Center, Stadium 310 Campus, Box 379, University of Colorado, Boulder, CO 80309. 303-492-7341.

THE FOURTH R.

Free loan or $155 for long-term lease.

Designed to increase public awareness about school energy problem and effects of rising energy costs on schools. Examples of schools across the country conserving energy. Companion booklet.

Tenneco, Public Affairs Division, P.O. Box 2511, Houston, TX 77011.

GUSTS OF POWER.

Free loan.

Produced by U.S. Department of Agriculture and Department of Energy. Explores wind use for pumping irrigation water and providing heating and cooling for farm processes.

DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830.

HERE COMES THE SUN.

1974

Free loan or purchase.

16mm, color, 15 minutes. Solar heating is explored in schools in Massachusetts Maryland, Virginia and Minnesota. The experiments are sponsored by the National Science Foundation.

For loan from DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830. For purchase from Byron Motion Pictures, Inc., 65 K Street, N.E., Washington, DC 20002.

HOME WEATHERIZATION NOW!

1978

Rental $40 per day/Purchase $150.

Shows a local FFA chapter making thermal storm windows and installing them. Intended to help people with self-help weatherization. 28 minutes, color videocassette. In English and Spanish.

Self Reliance Foundation, Las Trampas, NM 87576.

THE HOTTEST SHOW ON EARTH.

1978

Rental $35.

Produced by National Film Board of Canada. 16mm sound/color film, 28 minutes. A lively and humorous film which points out the importance of home insulation and other energy conservation measures.

MacMillan Films, 34 MacQueen Parkway, South, Mt. Vernon, NY 10550.

LIVING WITH ENERGY.

Rental or purchase for $195.

Documentary about energy sources, types, uses and conservation. Distributed only to states of MI, IN, WI, IL, IA, MO, ND, SD, NE, KS, OK, MT, WY and CO. 27 minutes.

For rental, write to Modern Talking Picture Service, Film Scheduling Center, 5000 Park Street North, St. Petersburg, FL 33709.

For purchase, write to Aoco Films, MC-3705, P.O. Box 5910-A, Chicago, IL 60680.

NATURAL GAS—DELIVERED ENERGY.

Purchase $60/Possible free loan, contact local gas utility company.

Application of science principles and technology in the control of the flow of natural gas within a distribution system; working of gas meter, compressor, and regulator; the use of computers in customer services. 15 minutes, 16mm, color and sound. Upper elementary through senior high level.

American Gas Association, Order and Billing Department, 1515 Wilson Blvd., Arlington, VA 22209. Order No. N90020.

NATURAL GAS IN THE '80s.

Purchase $90/Possible free loan, contact local gas utility company.

The educational version of the gas industry film "Gas Energy for America." Highlights the search for natural gas and its passage through a pipeline system to residential, commercial and industrial consumers. Also features the modern technology being used to supply more gas from the earth's resources. 13 minutes/ 16mm, color and sound. Junior and senior high level.

American Gas Association. Order and Billing Department, 1515 Wilson Blvd., Arlington, VA 22209. Order No. N90030.

PROJECT SAGE.

1976

Free loan or purchase.

16mm, color. 8½ minutes. At a small apartment complex near Los Angeles, solar collectors and piping supply hot water to 40 apartment units. The film documents the solar equipment installation through the eyes of the tenants. Though the film lacks somewhat in factual material, it does give a good perspective on just what is involved in converting to a solar system.

For loan from DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830. For purchase from Madison Films, Inc., 215 East 49th St., New York, NY 10017.

SAVING ENERGY AT HOME.

Rental.

How to cut down on energy consumption around the house. 15 minutes. Junior high level and up.

American Power Association, 2600 Virginia Avenue, N.W., Washington, DC 20037.

SOLAR ENERGY: THE GREAT ADVENTURE.

Free loan.

A new film that takes a look at innovative solar energy systems all across the country, and the unusually diverse group of people who developed them: a community-based, non-profit research and educational group sponsoring projects to help farmers and homeowners learn about solar; a 200-foot barge in Washington being renovated into a small-scale solar technologies demonstration facility; a community development corporation in California helping local people design, construct, and install solar collectors on low-income housing; an energy self-help project in New York operated by and for low-income minority folks and other projects.

DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830.

SOLAR ENERGY TODAY.

Free loan.

55-minute film.

Center for Energy Policy and Research, New York Institute of Technology, Old Westbury, NY 11568.

THE SOLAR FILM.

1979

Rental or sale.

Produced for CAN (Consumer Action Now) by Wildwood Enterprises, Inc. and presented by Warner Communications, Inc. and Norton Simon, Inc. Sound/color, 10 minutes. The film uses animation, live action and still photography to tell a story in three parts: how the sun made the earth, how humanity has dangerously exploited the resources created by the sun and how the sun can provide us today with yet another energy source that is clean, safe and ever-renewable.

Order 16mm and videocassette from Pyramid Films, Box 1048, Santa Monica, CA 90406. 213-828-7577. Rentals, three days—$30; Sale—$225 for 16 mm., $195 for videocassette. Order 35mm from Warner Communications, 4000 Warner Blvd., Burbank, CA 91522. 212-843-6000. $100. No rentals.

THE SOLAR GENERATION.

1976

Free loan or purchase for $350.

16mm, color, 21 minutes. This film takes a hard look at the problems and prospects for increased solar energy utilization in the U.S., examining some of the major public and private research efforts underway to explore both direct and indirect use of sun's energy. It looks at several solar-heated homes and schools and explores installations experimenting with solar furnaces around the world. Study guides are available that contain additional information and suggested classroom and community activities.

For loan from DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830. For purchase from Stuart Finley, Inc., 3428 Mansfield Road, Falls Church, VA 22041.

SUN DRIED FOODS.

1980

Rental $40/day; purchase: 16mm film $[illegible]5, color video-tape $195.

Demonstrates drying of corn, fruits, herbs and meats. For home economics and vocational agriculture projects in solar food drying.

Self Reliance Foundation, Las Trampas, NM 87576.

SUN POWER FOR FARMS.

Free loan.

Produced by U.S. Department of Agriculture and Department of Energy. Looks at several ways solar energy can be used on farms: for grain drying, heating buildings for livestock, storing heat in solar ponds, and others.

DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830.

TARGET . . . LOWER COST COAL.

Available on loan from ECCMC.

This film discusses the different types of mines, mechanized mining equipment, development of new equipment, coal research being done for the future, and coal distribution. It gives actual demonstrations of machine performance. 25 minutes/color.

Free loan from East Central Curriculum Management Center (ECCMC), Dept. of Adult, Vocational and Technical Education, Illinois State Board of Education, 100 North First St., Springfield, IL 62777. 217-782-0759. Order two months in advance.

TO BOTTLE THE SUN.

1973

Free loan or purchase for $60.00.

16mm, color, 5½ minutes. This film briefly examines the thermonuclear process—fusion—that powers the sun by the fusing of atoms. The film features the work of scientists at the Department of Energy and other laboratories studying methods to control the fusion process so that it may ultimately be harnessed to generate electricity.

For loan from DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830. For purchase from Doubleday Multimedia Company, 1371 Reynolds Avenue, Box 11607, Santa Clara, CA 92705.

THE ULTIMATE ENERGY.

1976

Free loan or purchase.

This documentary is about the challenging research activities of those seeking to translate the theories of thermonuclear fusion into a reality for energy. The film uses models and other production techniques to introduce the severe conditions that researchers must satisfy to achieve fusion power. Five major fusion research laboratories are visited, and the viewer learns first-hand about physicists' attempts to "imitate the sun."

For loan from DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830. For purchase from Sales Branch National Audiovisual Center, General Services Administration, Washington, DC 20409.

WIND: AN ENERGY ALTERNATIVE.

1979

Free loan.

Produced by Solar Energy Research Institute, 1617 Cole Blvd., Golden, CO 80401. 16mm, sound/color, 12 minutes. Explains principles of wind energy conversion systems, highlights earlier attempts to harness wind's energy and reviews current public and private wind projects.

Film Library, DOE-TIC Film Library, P.O. Box 62, Oak Ridge, TN 37830.

WITHIN THIS EARTH.

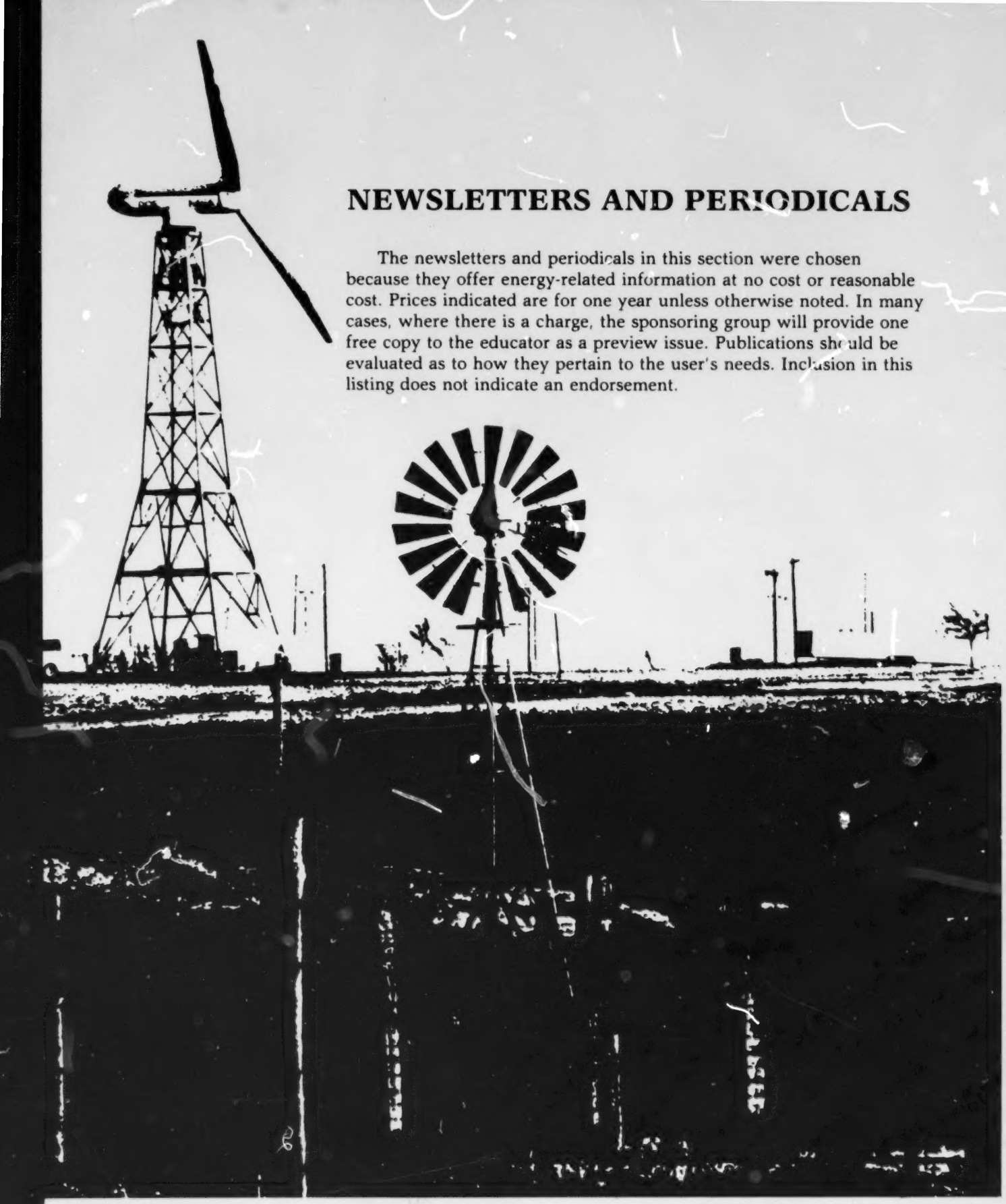
Free loan or purchase for $110.

Produced by American Mining Congress. Describes role of mining and minerals in people's everyday lives and the demand for minerals. 16mm.

AMC Communications Department, 1920 N St., N.W., Suite 300, Washington, DC 20036. 202-861-2800.

NEWSLETTERS AND PERIODICALS

The newsletters and periodicals in this section were chosen because they offer energy-related information at no cost or reasonable cost. Prices indicated are for one year unless otherwise noted. In many cases, where there is a charge, the sponsoring group will provide one free copy to the educator as a preview issue. Publications should be evaluated as to how they pertain to the user's needs. Inclusion in this listing does not indicate an endorsement.



ALTERNATIVE SOURCES OF ENERGY

every two months $15/individuals; $20/organizations

Information on renewable energy, trends in alternative energy, new products, book reviews, information and referral service for technical queries, and more.

Donald Marrier, Editor
Alternative Sources of Energy, Inc.
107 South Central Avenue
Milaca, MN 56353
612-983-6892

APWA ENERGY NEWSLETTER

quarterly free to members (membership, $45; students/$10

Articles on energy topics related to public works; bibliography.

Diane Nemeth, Editor
American Public Works Association
1301 Pennsylvania Avenue, N.W.
Suite 401
Washington, DC 20004
202-393-2792

ASH AT WORK

quarterly free

Activities and news of the National Ash Association; information concerning use of coal by-products from generation of electric power by fossil fuels.

James N. Covey, Executive Director
National Ash Association
1819 H Street, N.W.
Washington, DC 20006
202-659-2303

AT TIMES

every two months $3.50/four issues or $10/12 issues

Articles promoting energy self-sufficiency, alternative resources.

National Center for Appropriate Technology
P.O. Box 3838
Butte, MT 59701
406-494-4572

BIOTIMES

every two months $25/libraries; $15/individuals

Articles on research, education, projects in biomass, legislation, calendar of events.

Editor
International Biomass Institute
1000 Vermont Ave., N.W.
Washington, DC 20005
202-783-1133

CAN REPORTS

quarterly $15/members

Articles on Consumer Action Now (CAN) activities on energy conservation and consumer tips.

Editor
Consumer Action Now
355 Lexington Ave., 16th Floor
New York, NY 10017
212-682-8915

CITIBANK ENERGY NEWSLETTER

periodically free

Activities of the oil and gas industries, specific economic policies concerning national and international energy developments.

Editor, Citibank
Petroleum Department
399 Park Avenue
New York, NY 10022
212-559-1000

CITIZEN LABOR ENERGY COALITION NEWSLETTER

monthly $5

Missouri energy policy and energy events in Kansas City metropolitan area.

Citizen Labor Energy Coalition
Box 10171
Kansas City, MO 64111
913-362-5933

CONSERVATION ENERGY

monthly $25/annual membership fee

Articles on state and federal energy projects.

Julia Stefenelli, Editor
Alliance to Save Energy
1925 K St., N.W., Suite 507
Washington, DC 20006
202-857-0666

ENERGY AND ARCHITECTURE NEWSLETTER

monthly

Technical information on energy and architecture in buildings.

Dick Depta, Editor
American Institute of Architects
1735 New York Ave., N.W
Washington, DC 0006
202-626-7300

ENERGY AND EDUCATION

every other month free

Editorials by authorities in the fields of energy and education; listings of new, free or inexpensive materials; book reviews; current data on the energy situation; calendar of events.

Julia Fellows, Editor
National Science Teachers Association
1742 Connecticut Avenue, N.W.
Washington, DC 20009
202-328-5800

ENERGY CONSUMER (THE)

several times yearly free

Each issue focuses on specific theme such as alcohol fuels, solar energy, community projects; also information on federal activities and state contacts.

Division of University and Industry Programs
Office of Energy Research
U.S. Department of Energy
Mail Stop 7E054
Washington, DC 20585
202-252-5880

ENERGY CURRENTS

every two months free

Information on national energy education activities, meeting dates, funding sources for programs; lists and reviews of instructional texts, bibliographies, information sources, energy programs in operation at community colleges.

James R. Mahoney, Project Director
American Association of Community and Junior Colleges
One Dupont Circle, Suite 410
Washington, DC 20036
202-293-7050

ENERGY PLANNING NETWORK

every two months $15

Articles on community energy projects, research studies, book reviews, calendar.

Kevin Burke, Editor
Energy Planning Division
American Planning Association
P.O. Box 172
Vienna, VA 22180

ENERGY PUZZLE

monthly $25

Articles on energy conservation for the home and work place. 4-8 pages.

The Alliance to Save Energy
1925 K Street, N.W., Suite 507
Washington, DC 20006
202-857-0666

ENERGY SOURCE

monthly free

Research and development programs in energy conservation, alternative energy sources, fossil fuels, meeting dates, research and demonstration opportunities, recent publications.

Ann Hyder, Editor
New Mexico Energy Institute
117 Richmond Drive, N.E.
Albuquerque, NM 87106
505-277-3661

GROUNDSWELL

six times a year $15/membership, includes legislative and regulatory alerts

Monitors activities of federal government and citizens efforts on nuclear energy.

Peggy Bishop, Memberships
Nuclear Information and Resources Service
1536 16th St., N.W.
Washington, DC 20036
202-483-0045

MAINELY RENEWABLE

every two months free

Renewable energy information and activities pertinent to Maine; how-to instructions, report and research synopses, funding opportunities, brief annotated bibliography, calendar of events.

Vincent DiCara, Editor
Office of Energy Resources
State House Station #53
Augusta, ME 04333
207-289-3811

MID AMERICAN COALITION FOR ENERGY ALTERNATIVES

every two months $5

Primarily Kansas education and energy policies, county energy planning.

Editor
5130 Mission Road
Shawnee Mission, KS 66205
913-362-5932

MID-ATLANTIC NEWS

periodic free

Mailed only to persons in mid-Atlantic states. Covers programs, events, publications and organizations pertaining to alternative energy technologies.

Editor, MATNET (Mid Atlantic Appropriate Technology Network)
Citizens Energy Project
1110 6th Street, N.W., Suite 300
Washington, DC 20001
202-387-8998

MONTHLY ENERGY REVIEW

monthly $23

Statistical tables on production, prices, storage, imports and consumption of petroleum, natural gas and coal, data on nuclear energy and electric utilities.

Published by Energy Information Administration
U.S. Department of Energy
202-783-3238

Write to Government Printing Office
Superintendent of Documents
Washington, DC 20402

NEIGHBORHOOD WORKS (THE)

semi-monthly $25/individuals and nonprofit groups

Community self-help efforts in energy, food, shelter and health care.

Neighborhood Technology
570 W. Randolph Street
Chicago, IL 60606
312-454-0126

NEW ROOTS

every two months $10

Articles on solar and renewable energy, community projects, anti-nuclear activities in New England.

Editor
Northeast Appropriate Technology Networks, Inc.
P.O. Box 548
Greenfield, MA 01302
413-774-2257

RAIN

10 times a year $25/institutions; $15/individuals; $9.50/low-income persons

Book reviews, articles on small-scale renewable energy, self-reliant community development, environmental concerns.

Rain Umbrella, Inc.
2270 N. W. Irving Street
Portland, OR 97210
503-227-5110

SMALL FARM ENERGY PROJECT

bimonthly $5

Alternative energy activities.

P.O. Box 736
Hartington, NE 68739
402-254-6893

SMALL HYDRO BULLETIN

every other month free

Notes on ongoing programs funded by the U.S. Department of Energy, licenses and applications filed with Federal Energy Regulatory Commission, reports on demonstration projects, meetings and seminars across the country, government projects and programs helping people to develop small hydro operations.

Rosemarie Peterson, Editor
Hydropower Programs
EG and G Idaho, Inc.
P.O. Box 1625
Idaho Falls, ID 83415
208-526-0242

SOFT ENERGY NOTES

6 times a year $25

International energy journal with reports on new and renewable sources of energy, efficiency studies, research methods and policy issues.

Circulation Manager
Friends of the Earth Foundation
124 Spear Street
San Francisco, CA 94105
415-495-4770

SOFT SOLAR NOTES

every two months $15

How-to articles on applications of passive solar, information on recent publications. Eight pages.

Citizens Energy Project
1110 6th Street, N.W.
Washington, DC 20001
202-387-8998

SUN/REP NEWS

every two months free

Calendar of events, job listings, book reviews, articles on renewable energy conservation information, listings, roundup of news in 12 Southern states (NC, SC, GA, FL, TN, KY, AL, MS, AR, LA, TX, OK).

Southern Unity Network Renewable Energy Projects
Ken Mitchell, Suite 412
3110 Maple Drive
Atlanta, GA 30305
404-261-1764

SUN TIMES

monthly $15/membership in Solar Lobby

Information on grass-roots solar energy efforts and solar projects.

Kevin Finneran, Editor
Solar Lobby
1001 Connecticut Ave., N.W.
Suite 510
Washington, DC 20036
202-466-6880

SUN TIMES

monthly $12 or $15/membership

Articles on renewable energy, alternative sources, book reviews.

Wilbur Wood, Editor
Alternative Energy Resources Organization
424 Stapleton Building
Billings, MT 59101
406-259-1958

TRANET

quarterly $25/libraries; $15 individuals

Annotated references to texts, articles, papers and media related to appropriate/alternative technologies.

P.O. Box 567
Rangeley, ME 04970
207-864-2252

WINDLETTER (THE)

monthly $25

Articles on industry and wind energy projects, new developments, current announcements of conferences, workshops, publications.

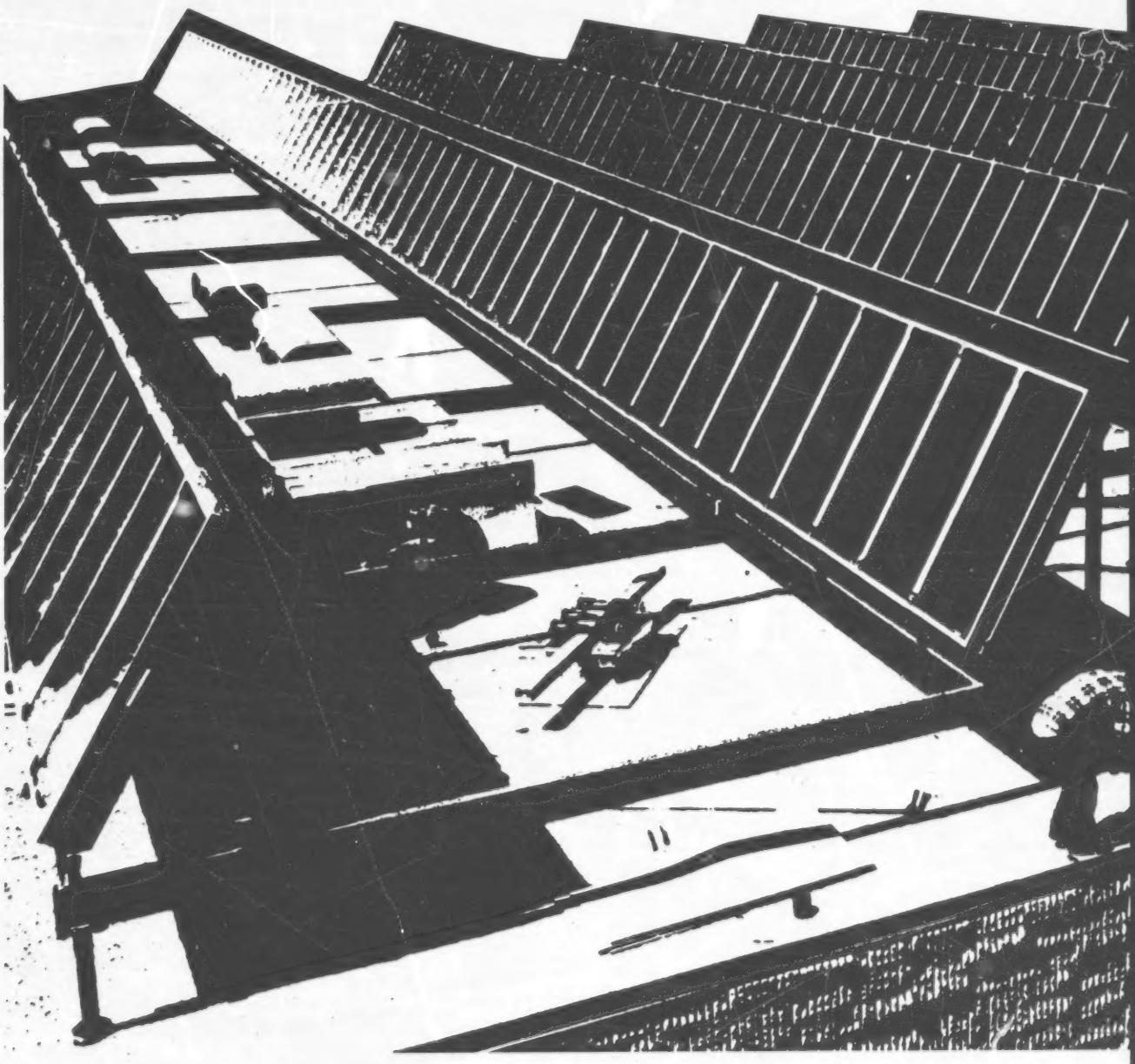
Editor
American Wind Energy Association (AWEA)
1609 Connecticut Ave., N.W.
Washington, DC 20009
202-667-9137

WISCONSIN ENERGY NEWS

monthly free

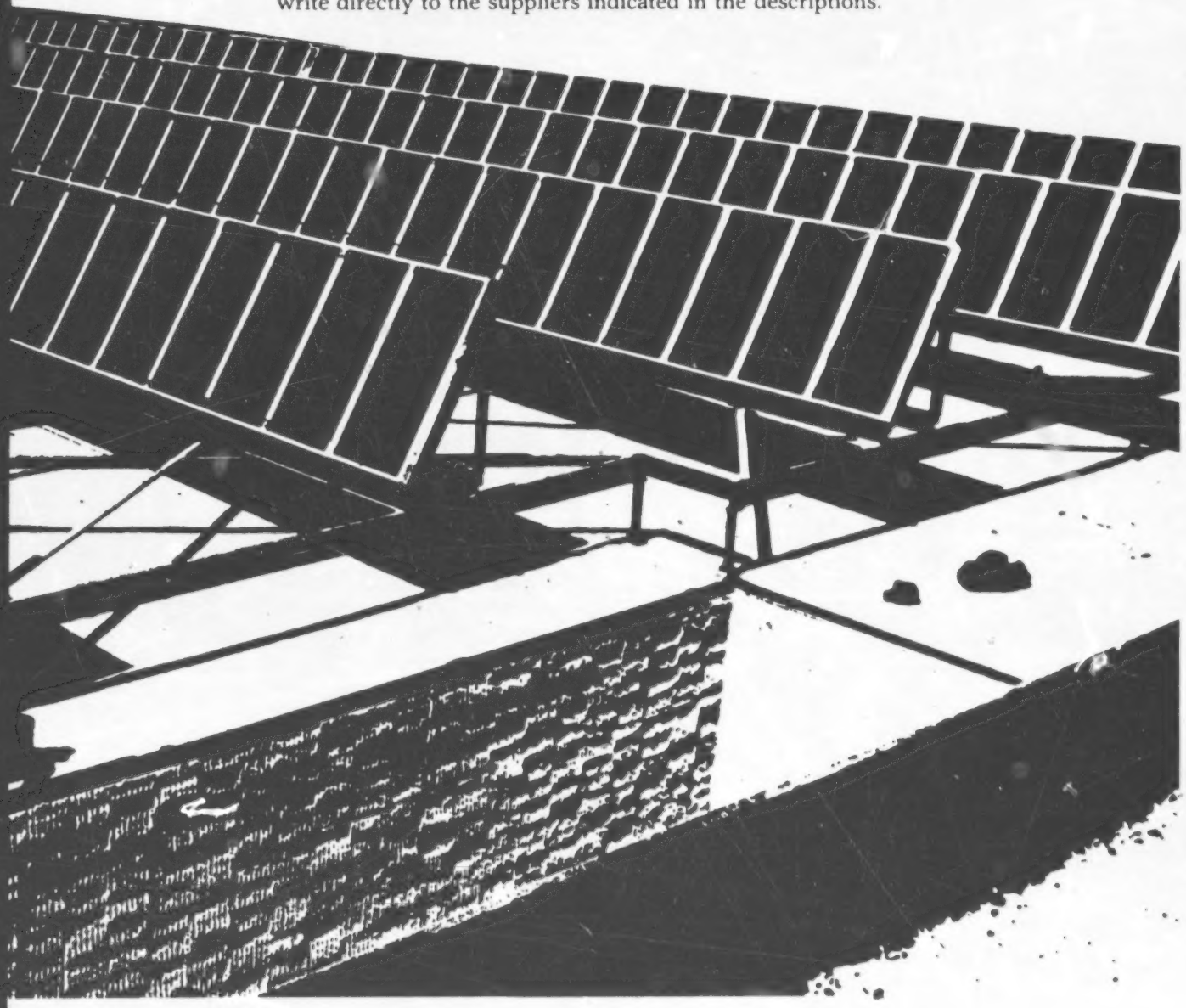
Includes information on programs, policies and research in energy conservation and renewable energy technology in Wisconsin and the Upper Midwest; literature references; calendar of events. Prepared by WI Energy Extension Service in cooperation with others.

University of Wisconsin-Extension
Program Information's Energy Information Center
One South Park Street, Rm. 727
Madison, WI 53706
608-263-7950



BIBLIOGRAPHIES AND DIRECTORIES

For the educator who is looking for even more information than what's contained in this guide, this section offers additional bibliographies and directories, many of which are free. Topics covered are as general as "energy resources" or as explicit as "alcohol fuels." Included here also are film catalogs and curriculum guides. Please write directly to the suppliers indicated in the descriptions.



Alcohol Fuels—An Annotated Bibliography. Available from National Center for Appropriate Technology, P.O. Box 3838, Butte, MT 59701. Eight pages. Single copies free. Lists practical handbooks, general interest materials (including an 800 item bibliography of papers written by experts on all sides of the alcohol fuels issue), periodicals and nonprofit organizations with on-going alcohol programs which offer technical assistance.

Alcohol Fuels Information Directory. Prepared by the Bureau of Alcohol, Tobacco and Firearms. Request publication 5000.3 from ATF Distribution Center, 3800 S. Four Mile Run Drive, Arlington, VA 22026. Contains a brief bibliography as well as lists of alcohol equipment manufacturers, enzyme and yeast suppliers, engineering firms and organizations that can provide the potential alcohol producer with assistance.

Alcohol Fuels and ATF. Request publication 5000.2 from Alcohol, Tobacco and Firearms Distribution Center, 3800 S. Four Mile Run Drive, Arlington, VA 22026. Explains how to go about applying for a permit to build an experimental alcohol plant.

Alcohol Fuels Reading List. Available from SERI Document Distribution Service, 1617 Cole Blvd., Golden, CO 80401. Free. Lists books, government reports, proceedings and articles that provide a basic introduction to the use of alcohol for fuel.

Audio-Visuals on Energy. 1977. Publications Department, Atomic Industrial Forum, Inc. 7101 Wisconsin Avenue, Washington, DC 20014. 32 pages. Single copy free to educators; 35¢ regular price. Bibliography of educational and public information films on energy, with descriptions of content, ordering information, etc.

A Bibliography for the Solar Home Builder. Office of Appropriate Technology, 1530 Tenth St., Sacramento, CA 95814. 38 pages. Free. A directory of books, developments, home designs and helpful information for the solar home builder.

A Bibliography of Materials for Environmental Education. 1978. Publications Unit, Rm. 342, Wisconsin Vocational Studies Center, University of Wisconsin-Madison, 321 Educational Bldg., Box 49, Madison, WI 53706. Order No. 199. 42 pages, $2.00. The entries in this bibliography are divided into the following areas: environmental education (general), ecology (general), natural resources, energy, land use, pollution, solid wastes, population and economic/social/cultural environment.

Citizens Energy Directory. Citizens Energy Project, 1110 Sixth Street, N.W., Washington, DC 20001. Please include 15% postage and handling charge. $15. ($11 for nonprofit groups and individuals.) A 185-page guide to resources (publications, schools, people, organizations, manufacturers, etc.) in wood, wind, water, solar, biomass and geothermal energy; extensively cross-indexed.

Citizens' Handbook on Solar Energy. 1977. Available from Public Interest Research Group, 1346 Connecticut Avenue, Suite 415, Washington, DC 20036. $3.50. 90 pages. Good resource for local solar projects.

Edison Electric Institute Publications Catalogue. 1981. Edison Electric Institute, 1111 19th Street, N.W., Washington, DC 20036. 64 pages. Free. Covers EEI publications in four areas: general energy books, consumer materials, educational materials, and technical/reference books. Includes an abstract section with brief descriptions of each publication; cross-indexed.

Energy: An Annotated Bibliography of Selected Energy Education Materials. Compiled for the Energy and Education Action Center by the Massachusetts Audubon Society's Environmental Education Institute. ERIC Order No. ED 162912. ERIC Document Reproduction Service, P.O. Box 190, Arlington, VA 22210. $3.50. Materials selected relate to issues of energy use in the environment.

Energy Conservation Resource Materials. 1978. Compiled by the National Center for Research in Vocational Education. Order No. VED 04. National Center Publications, 1960 Kenny Road, Columbus, OH 43210. 61 pages. $3.80. Contains sources of information on topics and resources related to, and organizations affiliated with solar energy study and application.

Energy Directory and Bibliography. New York State Alliance to Save Energy, 36 W. 44th Street, New York, NY 10036. $2.50. Guide to books, magazines and pamphlets on alternative energy sources and energy-conscious lifestyles.

Energy: ECCMC Special Bibliography in Vocational and Career Education. 1980. The East Central Curriculum Management Center, 100 North First St., Springfield, IL 62777. Free. This annotated bibliography lists materials that would be useful to vocational and career educators. Focus is on solar energy, energy and agriculture, natural energy sources, and energy and the environment. All materials listed are available on 30-day loan from East Central Curriculum Management Center.

Energy Education Materials Bibliography. 1978. (Updated version available this fall.) Prepared by the Minnesota Energy Agency. ERIC Order No. ED-162900. ERIC Document Reproduction Service, P.O. Box 190, Arlington, VA 22210. $4.82. Annotated bibliography of background materials and classroom activities indexed by grade level.

Energy Education Materials Inventory. Government Printing Office, Superintendent of Documents, Washington, DC 20402. Vol. I (thru May 1976) stock No. 061-000-00183-2, $5.25; Vol. II (June 1976-December 1978) stock No. 061-000-00341-0, $8. Comprehensive annotated bibliography of K-12 energy educational materials, including audio-visual, activity packets, printed materials, background reading, other bibliographies, all with ordering information.

Energy Education Resource Guide. Maryland State Department of Education. ERIC Order No. ED-179421. Document Reproduction Service, P.O. Box 190, Arlington, VA 22210. $4.55. Bibliography of 91 curriculum units, teacher-annotated, indexed by subject and grade, with ordering information.

Energy Information Referral Directory 1980. Government Printing Office, Superintendent of Documents, Washington, DC 20402. Order No. 061-003-00084-3. $5. A useful directory published quarterly of who's who and does what in the Department of Energy and other energy-related federal agencies.

Energy on Film. New York State Alliance to Save Energy, 36 W. 44th Street, New York, NY 10036. Describes over 160 films, with information on audience level, source, purchase and rental prices, length and availability in a second language.

Energy Resource Notes. Center for Energy Policy and Research, New York Institute of Technology, Old Westbury, NY 11568. Annual subscription $15. An annotated, six-page monthly bibliography of practical, easy to understand materials on energy efficiency, energy conservation, alternate sources and related policy matters.

Environmental Education: Guides/Booklets. Lee County Schools, Environmental Education, 2055 Central Avenue, Fort Myers, FL 33901. Free catalog of energy-environmental education materials, some in Spanish and French.

Films Available for Energy Education. Energy Conservation/Education Fact Sheet, No. 1-1980. Available from SMEAC Information Reference Center, The Ohio State University, 1200 Chambers Road, Room 310, Columbus, OH 43212. Identifies films and film catalogs useful for energy education and currently available from government and private industry. Includes some annotations and detailed procurement information.

4-H Energy Bibliography Intern Report. Education Aids, National 4-H Council, 150 N. Wacker Drive, Chicago, IL 60606. Order No. LI401. 52 pages, $1.00. List of resource materials on all aspects of energy.

Looking for Energy? A Guide to Information Resources. Public Relations, American Petroleum Institute, 2101 L Street, N.W., Washington, D.C. 20037. 30 pages. Single copies free to educators. A list of materials by energy subject available from nearly 40 sources.

Resources in Education. Available at most libraries. For a directory of libraries with microfiche collections of ERIC materials, write ERIC, Ohio State University, 1200 Chambers Road, Columbus, OH 43212. A periodical annotated index of materials in *ERIC*, (Educational Resources Information Center) lists resources suitable for energy education, either as direct classroom teaching aids or as sources of material for curriculum design.

SERI's National Solar Energy Education Directory. Government Printing Office, Superintendent of Documents, Washington, D.C. 20402. Order No. 061-000-00368-1. $5.50. 198 pages. Lists 1200 solar-related courses (including wind, biomass, and ocean thermal conversion) available at 750 colleges and trade schools. State-by-state listings are free from NSHCIC, P.O. Box 1607, Rockville, MD 20850.

70+ Films on Energy. American Public Power Association, 2600 Virginia Avenue, N.W., Washington, D.C. 20037. $1.50. Film bibliography describes over 70 films on energy, with emphasis on energy conservation.

Solar Bibliography: Energy Education Materials. National Solar Information Center, P.O. Box 1607, Rockville, MD 20850, or call (800) 523-2929. In Pennsylvania call (800) 462-4983. In Alaska and Hawaii call (800) 523-4700.

Solar Energy Education Bibliography. Prepared for Department of Health, Education and Welfare by the Center for Renewable Resources. $3.95. DOE/TIC, P.O. Box 62, Oak Ridge, TN 37830. Print and audio-visual materials for elementary, secondary and college students.

Solar Energy Technical Training Directory. 1979. George Corcoleotes and others, Solar Energy Research Institute. Available from: NSHCIC, P.O. Box 1607, Rockville, MD 20850. SERI/SP-84-282. Free. Lists schools offering solar programs alphabetically by state. Detailed course information provided.

35 Energy Films—1980. DOE Film Library, P.O. Box 62, Oak Ridge, TN 37830. 26 pages. Free. Lists free films for educational, nonprofit and non-commercial screening; includes information on borrowing, buying and copying.

Wind Energy Information. Order from SERI, 1617 Cole Boulevard, Golden, CO 80401. A directory of organizations able to provide publications and technical assistance. Includes a listing of audio-visual materials and a partial bibliography of readily available general wind information.

Wind Energy: An Introduction. Order from American Wind Energy Association, 1609 Connecticut Avenue, N.W., Washington, DC 20009. 16 pages, $2.00, bulk rates available. General information on wind; lists of manufacturers and distributors of wind energy equipment.

GLOSSARY OF ENERGY-RELATED TERMS

absorber—a coated panel in a collector that absorbs the solar radiation transmitted through the cover plate and converts it to heat energy.

absorber fluid passages—pipes or ducts that enable th heat-transfer medium tc flow through the absorber panel and carry collected heat to storage.

absorber response time—the length of time the absorber panel takes to heat up or cool down.

absorptance—the ratio of solar energy absorbed by a surface to the radiation striking it. Energy not absorbed is transmitted or reflected.

absorptive coating—covers the absorber plate and improves its ability to absorb energy without reflecting it away.

absorptive index—measure of how much energy the surface will absorb.

active solar system—a system that has equipment to trap the sun's energy and mechanically move that energy to its point of intended use for water heating, space heating, and possibly space cooling. Usually has storage capabilities.

air-type collector—a collector that uses air as the heat-transfer medium.

angle of incidence—angle at which solar energy strikes a surface.

anodic—more electrically positive. Opposite of cathodic.

appraisal value—the value a lending institution places on the investment. Not necessarily cost or market price.

auxiliary heater—some type of conventional heating system, fossil fuel or electric, used to provide backup energy for water heating and/or space heating when the solar system cannot meet the energy demand.

azimuth—the angle between solar south and the direction in which the collectors are faced. Used in F-Chart calculations.

binary process (geothermal)—utilizes the liquid-dominated reservoir mixture by circulating the water or brine through a heat exchanger. A second fluid is heated for use in the turbine.

biomass—waste products such as paper, plastics, and agricultural residues from crops, waste sludges, and animal wastes.

British thermal unit (Btu)—the amount of heat required to raise the temperature of one pound (one pint) of water, one degree Fahrenheit.

building design load—the total heat loss that must be made up by the heating system under the severest winter conditions for the area.

building design temperature—the lowest temperature expected for the building's location. When subtracted from 65°F and multiplied by the heat loss, it can be used to calculate the building design load.

cathodic—more electrically negative. Opposite of anodic.

ccf—100 cubic feet. A common unit of measure for natural gas.

centrifugal pump—a type of pump which has blades that rotate and whirl the fluid around so that it acquires sufficient momentum to discharge from the pump body. The fluid is thrown outward by centrifugal force.

closed-loop system—no part of the system is vented to the atmosphere. The system liquid is recirculated.

coefficient of heat transmission—U-factor.

coil-in-tank heat exchanger—a finned coil in the bottom of a water tank. Most commonly used on solar-water heating systems.

collector—a device used to collect solar radiation (energy) and to convert it into usable heat.

collector efficiency—the performance of a collector, measured as a ratio of useful energy collected to the incident (available) energy striking the collector. Expressed in percent.

collector housing—prevents moisture, dirt, dust and air from entering the collector.

collector loop—the part of the solar system that has solar collectors, a water pre-heater tank or storage tank, a heat exchanger, and the necessary piping, valves, pumps, and controls for collecting energy.

collector-rise factor (CRF)—the ratio of the temperature difference across the collector compared to the temperature difference between the collector inlet and the storage tank outlet.

collector tilt angle—the angle between the collector and a horizontal or level surface.

compound parabolic mirror collector—a concentrating collector that uses special mirrors to gather both direct and diffuse solar radiation without tracking the sun.

concentrating collector—a collector which uses reflective devices or optical lens arrangements to concentrate the sun's rays onto a small collector/absorber area. Usually has means for tracking sun.

conduction—heat movement through a solid mass.

Consumer Price Index (CPI)—used to predict the cost of all consumer goods. Measures the rate of inflation. A relative value of current costs to those in a given base year (i.e. 1967 = 100).

convection—heat movement in a moving body of air or liquid.

counterflow heat exchanger—a self-contained heat exchanger in which the two substances flow in opposite directions.

cover plate—transparent sheet of glass or plastic that is mounted above the absorber plate. Also called glazing.

crevice corrosion—associated with bad gasketing, poorly fitting joints, internal blockage, scale deposits from hard waters, and poor design.

degree day—a unit of measurement used in heat-loss calculations and solar-system sizing. Shows degrees difference between 65°F and the day's mean outdoor temperature. A 25 degree-day would have a mean temperature of 40°F. Two such days would add up to 50 degree-days.

density—weight per unit.

differential thermostat—measures the difference between the collector and the tank temperatures.

Issues the appropriate instructions to the control system.

diffuse radiation—scattered, nonparallel energy rays from the sun. Makes the sky blue on clear days and gray on hazy days. Caused by dust, moisture, clouds.

direct process (geothermal)—utilizes the liquid-dominated reservoir mixture by separating the steam from the water or brine and using it in a turbine to produce mechanical work.

direct radiation—composed of parallel rays coming straight from the sun. Casts shadows on clear days.

drum or pillow rooftop heater—the simplest form of solar-water heating. Water storage is on roof to collect energy.

electrolyte—a fluid solution, such as saltwater, which is capable of carrying an electrical current.

emissivity—measure of a surface's tendency to emit thermal radiation.

EPA—the Environmental Protection Agency. Sets and reviews guidelines for measures to protect the environment (air and water) from damage caused by industrial pollution.

erosion/corrosion—a type of corrosion caused by high-velocity liquid flow over a metal's protective coating.

expansion tank—takes up the overflow created when the heat-transfer fluid expands.

F-chart—computer simulation program that predicts the average performance of a solar system under average weather conditions. Used for sizing systems, thermal analysis, and cost-benefit analyses.

flash point—the temperature at which fluid vapors will flashover if an ignition source is present.

flat-plate collector—converts the sun's radiation into heat on a flat surface within a simple box. Does not use reflecting surfaces, lens arrangements.

flux—for collectors, the intensity of heat flow; for soldering, a substance used to clean the pipe surfaces and to promote a good bond.

fossil fuels—energy sources such as oil, natural gas, and coal. Formed by decayed vegetation under tons of soil and rock millions of years ago.

fuel ignition temperature—the lowest temperature at which a fuel will ignite.

galvanic corrosion—caused by an electrochemical reaction between two or more different metals in a system.

galvanic series—metals ranked from electrically positive to electrically negative. Measures relative "corrodability" of each metal when used in a multimetal system.

getter—a column or cartridge containing an active metal which will be sacrificed to protect some other metal in the system against galvanic corrosion.

head—for pumping considerations, the vertical rise to the highest point in the system. Does not include the horizontal run to that point. Head losses are important for determining flow rates and pump size.

headers—main passages through which the heat-transfer medium enters into or exits from the collector. Also called manifolds.

heat capacity—amount of heat that can be stored in the material to raise the temperature 1°F. Found by multiplying specific heat by density.

heat-delivery loop—the part of the system that takes energy from storage and uses it for space heating. Includes auxiliary heater.

heat exchanger—a device which transfers heat from one substance to another substance without mixing the two.

heat-exchanger effectiveness—the ratio of the actual rate of heat transfer to the theoretical maximum rate of heat transfer in an infinitely large heat exchanger.

heat-loss principles—describe heat energy movement from a space or object to another space or object.

heat pump—a device which uses a compressible refrigerant to transfer heat from one source to another, cooling the first and heating the second. Can be liquid-to-air or air-to-air. Can provide heat in winter, cool air in summer by switching mode.

heat-transfer medium—air or liquid that is heated and used to transmit energy to its point of use.

heat transmission—the rate at which heat is conducted through a solid.

hourly design load—hourly heat loss multiplied by 65°F minus the building design temperature.

hysteresis setting—factory adjustment of the control system. Refers to a time-delay circuit, which prevents the pump from being cycled on or off, following a pump turn-off or turn-on event.

inhibitors—additives to storage water to prevent algae and corrosion.

input sensors—located in the collector loop and heat-delivery system. They provide instructions to the control system by measuring temperatures.

insolation—the total amount of solar radiation striking a collector cover plate. Includes direct, diffuse, and reflected radiation.

isogonic chart—shows magnetic compass deviations from true north.

kwh—kilowatt-hours. Equals 1000 watt hours. Electricity is sold in kwh.

linear concentrating collector—collects solar radiation by reflecting the energy off a large curved mirror to a receiver that contains a heat-transfer liquid.

linear-trough, fresnel lens collector—solar radiation passing through the lens is bent to strike a small absorber plate at the bottom of a trough, which contains a heat-transfer liquid.

liquid-dominated reservoir—a geothermal resource site that contains a mixture of hot water (or brine) and steam.

LNG—liquid natural gas. Gas is liquefied by extremely cold temperatures.

liquid-type collector—a collector that uses a liqud as the heat-transfer medium.

log mean temperature difference—a complex mathematical function used to describe fluid temperatures in a heat exchanger.

Mercator's projection—map that has latitude and longitude drawn in straight lines. Used for plotting obstacles on the solar window which might block energy collection.

microprocessor—an electronic device with computer capabilities. Used in controls to compare the sensor data and issue instructions to the pump.

mixed-flow heat exchanger—a heat exchanger in which one substance sees the average temperature of the other substance. The two substances flow across each other. Also called cross-flow.

nonselective surface—an absorber-panel coating which absorbs most of the sunlight hitting it but emits a high level of thermal radiation. Typically, a flat-black paint.

ocean thermal power—electricity is produced by using the difference in water temperature.

ocean tidal power—electricity produced by using the rise and fall of ocean tides.

oil shale—oil-bearing rock. It can be mined and cooked to drive the oil out.

OPEC—The Organization of Petroleum Exporting Countries. Regulates base prices of worldwide oil supply.

open-loop system—some part of the system is vented to the atmosphere, or the system contains fresh or changeable water.

passive system—a solar system which has no mechanical means to move or regulate the release of collected energy.

payback period—the amount of time (years) needed for a building owner to recover the system investment in fuel-cost savings.

phase-changing materials—able to change from solid to liquid and back to solid. Certain salts and paraffins being studied for use in solar storage.

pitting corrosion—caused by metal ions leaving localized areas, causing a pitted surface or uneven corrosion.

pump staging—a method of placing two or more pumps together to increase flow or overcome head losses. Series-staged pumps are placed in the same line. Parallel-staged pumps are placed in two separate lines, feeding a common line.

quad—quadrillion Btu. Convenient for making energy statements.

radiation—heat movement from a warm surface.

reflected radiation—solar energy sent to the collectors from adjacent surfaces.

refractive index—measure of how much a surface will bend energy beams as they pass through the material.

retrofitting—the installation of a solar energy system on an existing building.

risers—flow passages (pipes or channels) that distribute heat-transfer fluid across the absorber panel in a collector.

R-value—the tested insulation value which is used to calculate the U-factor. "R" is the resistance to heat flow.

selective surface—an absorber-panel coating which absorbs most of the sunlight hitting it and emits very little thermal radiation. Metal oxides that are selective to certain energy wavelengths are commonly used.

solar radiation—the sun's energy that comes to earth in the form of direct, diffuse, and reflected rays.

solar storage—a water tank or rock-pebble bed that absorbs collected solar energy and holds it until needed.

solar window—an outline of an area in the sky through which a maximum amount of direct solar radiation reaches the collectors during a year. Described by summer solstice, winter solstice, and 9 AM to 3 PM solar time.

specific heat—number of Btu required to raise the temperature of one pound of the material one degree Fahrenheit.

stagnation—a condition in a system that results when the heat-transfer fluid does not flow. Common in summertime.

storage-type water heater—functions as both a solar energy collector and a warm-water storage unit. A drum or pillow rooftop heater is an example.

storage water—water used to store solar heat until needed for water heating or space heating. Usually, nonpotable, demineralized, and treated with corrosion and fungi inhibitors.

sun path diagram—a circular drawing of the sky that shows the sun's position at various times of the year. Used to draw the solar window.

Syncrude—synthetic crude oil.

SNG—synthetic natural gas made by coal gasification or biomass conversion.

System CLP—cost, life and performance of a solar system. Used to measure the relative value of the system. Can be expressed as dollars per Btu collected.

tar sands—oil-bearing sand.

Tennessee Valley Authority (TVA)—controls 48 fully developed dam sites in the Tennessee river basin. The world's largest single producer of electrical power.

tertiary oil recovery—used to recover oil that remains after primary and secondary methods.

thermal mass—a building's ability to soak up and retain energy. High-thermal-mass materials change temperature very slowly.

thermistor—sensing device that changes its electrical resistance according to temperature. Used in the control system to generate input data on collector and storage tank temperature.

thermostat—temperature-sensing device which controls on/off function of heat-delivery system.

thermosyphon loop—a natural convection loop in a solar collector. Water in the collector is heated by the sun, becomes lighter, and flows into a storage drum.

threshold setting—factor adjustment of the control system. Refers to the size of the temperature difference between the pump turn-on and turn-off temperatures.

transmittance—the ratio of solar energy passed through a surface to the radiation striking it. Energy not transmitted is absorbed or reflected.

U-factor—the number of Btu which pass through one square foot of solid in one hour if there is a one degree (F) difference between the two sides. Used to express heat transmission. The reciprocal of "R" (U = 1/R).

vapor-dominated reservoir—a geothermal resource site that contains superheated steam.

wavelength—the distance between the start and finish of an energy pulse.

Wholesale Price Index (WPI)—used to predict the selling price of various energy sources to utilities and fuel outlets. A relative value of a current price to a price in a given base year (i.e. 1967 = 100).